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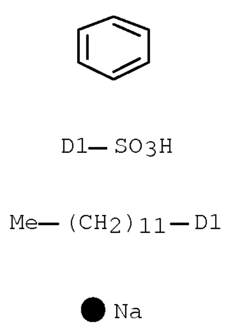
=> d que
L4            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  781-07-7/RN
L5            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  28675-11-8/RN
L6            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  25155-30-0/RN
L7            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  28348-62-1/RN
L8            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  33773-60-3/RN
L9            5 SEA FILE=REGISTRY ABB=ON  PLU=ON  (L4 OR L5 OR L6 OR L7 OR
                L8)
L11       10560 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9
L12        1740 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L11 AND DISPERS?
L15        1023 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L12 AND SURFACT?
L16             QUE  ABB=ON  PLU=ON  NANOTUBE? OR NANOSCALE? OR NANOSTRUC
                TURE? OR NANOWIRE? OR NANOROD? OR NANOCRYST? OR NANO(W)(T
                UBE? OR SCALE? OR ROD? OR STRUCTURE? OR CRYST?)
L17          70 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND L16
L18          56 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L17 AND CARBON#
L20             QUE  ABB=ON  PLU=ON  SWNT OR MWNT OR DWNT OR NANOFIBER OR
                 NANOFIBRE OR NANOTOROID
L21          21 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L18 AND L20
L22             QUE  ABB=ON  PLU=ON  SODIUM OCTYLBENZENE SULFONATE# OR SO
                DIUMDOCTYLBENZENE SULFONATE# OR SODIUMOCTYLBENZENESULFONA
                TE
L23             QUE  ABB=ON  PLU=ON  HEXYLBENZENE SULFONATE# OR HEXYLBENZ
                ENESULFONATE#
L24             QUE  ABB=ON  PLU=ON  SODIUM HEXADECYLBENZENE SULFONATE# O
                R SODIUMHEXADECYLBENZENE SULFONATE# OR SODIUMHEXADECYLBEN
                ZENESULFONATE
L25             QUE  ABB=ON  PLU=ON  NADDBS OR SODIUM DODECYLBENZENE SULF
                ONATE# OR SODIUMDODECYLBENZENE SULFONATE# OR SODIUMDODECY
                LBENZENESULFONATE
L26          18 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L18 AND (L22 OR L23 OR
                L24 OR L25)
L27          56 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L18 OR L21 OR L26
L28          56 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L27 AND (DISPERS? OR
                SUSPENS?)


=> d l28 1-56 ibib ed abs hitstr hitind

L28  ANSWER 1 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2008:873104  HCAPLUS  Full-text
TITLE:                    Photocatalytic oxidation treatment of
                          high-concentration industrial organic wastewater
                          by titania-based nanocomposite photocatalyst
INVENTOR(S):              Zhang, Jingchang; Hu, Bin; Cao, Weiliang
PATENT ASSIGNEE(S):       Beijing University of Chemical Technology, Peop.
                          Rep. China
SOURCE:                   Faming Zhuanli Shenqing Gongkai Shuomingshu, 15pp.
                          CODEN: CNXXEV
DOCUMENT TYPE:            Patent
LANGUAGE:                 Chinese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND    DATE         APPLICATION NO.         DATE
     ---------------     ----    --------     --------------------    --------
     CN 101219371         A      20080716     CN 2007-10063300        20070108
PRIORITY APPLN. INFO.:                        CN 2007-10063300        20070108
```

ED   Entered STN: 22 Jul 2008
AB   The title titania-based nanocomposite photocatalyst comprises (by weight%) TiO_2 10.0-80.0, support 80.0-20.0, and doping metal or non-metal (N, P, Si, S, Cl and/or C) element 0.01-20.0. The titania-based nanocomposite photocatalyst is prepared by mixing Ti compound (titanium tetrachloride, titanyl sulfate, iso-Pr titanate, etc.) with metal salt solution (cerium nitrate, ferric oxide, sodium metavanadate, etc.), adding surfactant (diethanolamine, Tween, polyvinyl alc., etc.) and support (sand, glass beads, glass fiber fabric, silica, active carbon, etc.), dropping alkali solution (KOH, urea, sodium bicarbonate, etc.), regulating pH to 8-10, aging, drying, and calcining at 300-900°C. The recombination between photoelectron and hole is reduced, thereby shifting the optical absorption wavelength of the photocatalyst towards optical region. The titania-based nanocomposite photocatalyst with particle size of 5-40 nm is used to treat high-concentration industrial organic wastewater (containing phenol, acrylic acid, benzene, methyl orange, etc.) at pH 1-7 under UV and/or visible light in the presence of oxidizing agent, and COD is reduced from 10,000-40,000 mg/L to 100 mg/L below.
IT   INDEXING IN PROGRESS
IT   25155-30-0, Sodium dodecyl benzene sulfonate
        (photocatalytic oxidation treatment of high-concentration industrial organic
        wastewater by titania-based nanocomposite photocatalyst)
RN   25155-30-0 HCAPLUS
CN   Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC   67 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
IT   Nanotubes
        (carbon; photocatalytic oxidation treatment of high-concentration industrial organic wastewater by titania-based nanocomposite photocatalyst)
IT   7440-44-0, Activated carbon
        (activated; photocatalytic oxidation treatment of high-concentration industrial organic wastewater by titania-based nanocomposite photocatalyst)
IT   7439-89-6, Iron   7439-96-5, Manganese   7440-21-3, Silicon   7440-22-4, Silver   7440-31-5, Tin   7440-43-9, Cadmium   7440-44-0, Carbon   7440-45-1, Cerium   7440-50-8, Copper   7440-62-2, Vanadium   7440-66-6, Zinc   7704-34-9, Sulfur   7723-14-0, Phosphorus   7727-37-9, Nitrogen   16389-88-1, Dolomite
        (photocatalytic oxidation treatment of high-concentration industrial organic
        wastewater by titania-based nanocomposite photocatalyst)
IT   57-13-6, Urea   64-17-5, Ethanol   67-56-1, Methanol   67-63-0,

Isopropanol 75-65-0, tert-Butanol 102-71-6, Triethanolamine 111-42-2, Diethanolamine 112-80-1, Oleic acid 127-09-3, Sodium acetate 144-55-8, Sodium hydrogen carbonate 151-21-3, Sodium dodecyl sulfate 298-14-6, Potassium hydrogen carbonate 497-19-8, Sodium carbonate 584-08-7, Potassium carbonate 822-16-2, Sodium stearate 1310-58-3, Potassium hydroxide 1310-73-2, Sodium hydroxide 1312-73-8, Potassium sulfide 1313-13-9, Manganese dioxide 7601-90-3, Perchloric acid 7664-41-7, Ammonia 7681-11-0, Potassium iodide 7681-52-9, Sodium hypochlorite 7697-37-2, Nitric acid 7722-64-7, Potassium permanganate 7722-84-1, Hydrogen peroxide 7757-83-7, Sodium sulfite 7778-50-9, Potassium bichromate 9002-89-5, Polyvinyl alcohol 9003-39-8, Polyvinylpyrrolidone 10028-15-6, Ozone 25155-30-0, Sodium dodecyl benzene sulfonate
(photocatalytic oxidation treatment of high-concentration industrial organic wastewater by titania-based nanocomposite photocatalyst)

IT 64-18-6, Formic acid 67-66-3, Trichloromethane 69-72-7, Salicylic acid 71-43-2, Benzene 75-07-0, Acetaldehyde 79-10-7, Acrylic acid 98-95-3, Nitrobenzene 106-48-9, 4-Chlorophenol 108-88-3, Toluene 108-95-2, Phenol 547-58-0, Methyl orange 989-38-8, rhodamine-6G 28983-56-4, Methyl blue 67584-73-0, Disperse Red
(photocatalytic oxidation treatment of high-concentration industrial organic wastewater by titania-based nanocomposite photocatalyst)

L28 ANSWER 2 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2008:764688 HCAPLUS Full-text
DOCUMENT NUMBER: 149:184332
TITLE: Quantitative Evaluation of Surfactant-stabilized Single-walled Carbon Nanotubes: Dispersion Quality and Its Correlation with Zeta Potential
AUTHOR(S): Sun, Zhenyu; Nicolosi, Valeria; Rickard, David; Bergin, Shane D.; Aherne, Damian; Coleman, Jonathan N.
CORPORATE SOURCE: Schools of Physics and Chemistry and Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), Trinity College Dublin, University of Dublin, Dublin, Ire.
SOURCE: Journal of Physical Chemistry C (2008), 112(29), 10692-10699
CODEN: JPCCCK; ISSN: 1932-7447
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 26 Jun 2008

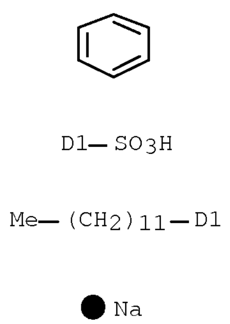
AB Stable dispersions of single-walled carbon nanotubes in deionized water were prepared using six common surfactants: sodium dodecylbenzene sulfonate (SDBS), sodium dodecyl sulfate (SDS), lithium dodecyl sulfate (LDS), tetradecyl tri-Me ammonium bromide (TTAB), sodium cholate (SC), and Fairy liquid (FL). For all nanotube dispersions (CNT = 1 mg/mL), the optimum concentration of surfactant was found to be close to CSurf = 10 mg/mL by measuring the fraction of nanotubes remaining after centrifugation for a range of surfactant concns. The aggregation state of each nanotube-surfactant dispersion was characterized as a function of nanotube concentration by AFM anal. of large nos. of nanotubes/bundles deposited onto substrates. The dispersion quality could then be quantified by four parameters: the saturation value (at low concentration) of the root-mean-square bundle diameter, the maximum value of

the total number of dispersed objects (individuals and bundles) per unit volume of dispersion, the saturation value (at low concentration) of the number fraction of individual nanotubes, and the maximum value of the number of individual nanotubes per unit volume of dispersion. According to these metrics, the dispersion quality of the six surfactant- nanotube dispersions varied as SDS > LDS > SDBS > TTAB > SC > Fairy liquid It was found that each of these dispersion-quality metrics scaled very well with the measured ζ-potential of the surfactant-nanotube dispersion. This confirms that dispersion quality is controlled by the magnitude of electrostatic repulsive forces between coated nanotubes.

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(preparation of stable dispersion of single-walled carbon nanotube with surfactant)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 66-4 (Surface Chemistry and Colloids)

ST stable dispersion single walled carbon nanotube surfactant zeta potential

IT Nanotubes
(carbon, single-walled; preparation of stable dispersion of single-walled carbon nanotube with surfactant)

IT Sols
Stability
Surfactants
Zeta potential
(preparation of stable dispersion of single-walled carbon nanotube with surfactant)

IT 7440-44-0, Carbon, properties
(nanotubes, single-walled; preparation of stable dispersion of single-walled carbon nanotube with surfactant)

IT 151-21-3, Sodium dodecyl sulfate, processes 361-09-1, Sodium cholate 1119-97-7, Tetradecyl trimethyl ammonium bromide 2044-56-6, Lithium dodecyl sulfate 25155-30-0, Sodium dodecylbenzene sulfonate
(preparation of stable dispersion of single-walled carbon nanotube with surfactant)

REFERENCE COUNT: 66 THERE ARE 66 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 3 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2008:559057 HCAPLUS Full-text
DOCUMENT NUMBER: 149:11703
TITLE: Preparation of MnO2-coated carbon nanotube core-shall composites
INVENTOR(S): Zhang, Xiaobin; Zhou, Shengming; Mi, Yuhong; Wan, Caihua; Dong, Xihui; Zhu, Huayun; Cheng, Jipeng
PATENT ASSIGNEE(S): Zhejiang University, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 6pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 101173117	A	20080507	CN 2007-10156155	20071019
PRIORITY APPLN. INFO.:			CN 2007-10156155	20071019

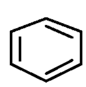
ED Entered STN: 09 May 2008

AB Title method comprises: (1) adding carbon nanotubes (diams. = 10-40 nm) into a mixture of concentrated sulfuric acid and nitric acid at a volume ratio of 3:1 (10-15 weight times of carbon nanotubes), ultrasonicating for 0.5-1 h, filtering, and repeatedly washing with distilled water until the pH value of the washing liquid is 6-7, (2) adding acid-treated carbon nanotubes and surfactant into water, ultrasonicating so that acid-treated carbon nanotubes are uniformly dispersed in water, adding permanganate and 98 % sulfuric acid, and ultrasonicating for 0.5-1h, and (3) filtering, dehydrating, repeatedly washing with distilled water until the pH value of the washing liquid is 6-7, and drying in air or oven-drying below 90° to obtain powder of MnO2-coated carbon nanotube core-shall composite. In step 2, the weight ratio of acid-treated carbon nanotubes, surfactant , water, permanganate and 98 % sulfuric acid is 1:(1.5-2.5):500:(10- 25):(10-30). MnO2 nanocrystals are aligned along the radial direction of carbon nanotubes, which can enlarge the sp. surface area of the coating layer. The obtained powder of MnO2-coated carbon nanotube core-shall composite has the advantages of high dispersibility, and high medium porosity, and can be used in chemical catalysis, high-performance battery and supercapacitor.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(preparation of MnO2-coated carbon nanotube core-shall composites)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO3H

Me— (CH2)11 — D1

● Na

CC 42-2 (Coatings, Inks, and Related Products)
Section cross-reference(s): 38
ST carbon nanotube manganese oxide composite
potassium sodium permanganate
IT Nanotubes
(carbon; preparation of MnO_2-coated carbon
nanotube core-shall composites)
IT 7440-44-0, Carbon, processes
(nanotubes; preparation of MnO_2-coated carbon
nanotube core-shall composites)
IT 1313-13-9P, Manganese oxide, uses
(preparation of MnO_2-coated carbon nanotube
core-shall composites)
IT 7722-64-7, Potassium Permanganate 10101-50-5, Sodium Permanganate
14333-13-2, Permanganate
(preparation of MnO_2-coated carbon nanotube
core-shall composites)
IT 7664-93-9, Sulfuric acid, reactions 7697-37-2, Nitric acid,
reactions
(preparation of MnO_2-coated carbon nanotube
core-shall composites)
IT 57-09-0, Hexadecyltrimethylammonium bromide 302-95-4
25155-30-0, Sodium dodecylbenzenesulfonate
(preparation of MnO_2-coated carbon nanotube
core-shall composites)

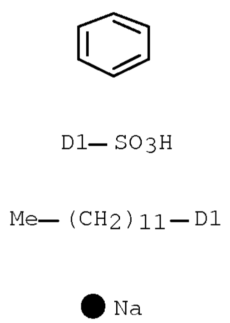
L28 ANSWER 4 OF 56 HCAPLUS
ACCESSION NUMBER: 2008:514355 HCAPLUS Full-text
DOCUMENT NUMBER: 148:579861
TITLE: Comparison of the Quality of Aqueous Dispersions of Single Wall Carbon Nanotubes Using Surfactants and Biomolecules
AUTHOR(S): Haggenmueller, Reto; Rahatekar, Sameer S.; Fagan, Jeffrey A.; Chun, Jaehun; Becker, Matthew L.; Naik, Rajesh R.; Krauss, Todd; Carlson, Lisa; Kadla, John F.; Trulove, Paul C.; Fox, Douglas F.; DeLong, Hugh C.; Fang, Zhichao; Kelley, Shana O.; Gilman, Jeffrey W.
CORPORATE SOURCE: National Institute of Standards and Technology, Gaithersburg, MD, 20899, USA
SOURCE: Langmuir (2008), 24(9), 5070-5078
CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 29 Apr 2008
AB The use of single wall carbon nanotubes (SWCNTs) in current and future applications depends on the ability to process SWCNTs in a solvent to yield high-quality dispersions characterized by individual SWCNTs and possessing a min. of SWCNT bundles. Many approaches for the dispersion of SWCNTs have been reported. However, there is no general assessment which compares the relative quality and dispersion efficiency of the resp. methods. Herein we report a quant. comparison of the relative ability of "wrapping polymers" including oligonucleotides, peptides, lignin, chitosan, and cellulose and surfactants such as cholates, ionic liqs., and organosulfates to disperse SWCNTs in water. Optical absorption and fluorescence spectroscopy provide quant.

characterization (amount of SWCNTs that can be suspended by a given surfactant and its ability to debundle SWCNTs) of these suspensions. Sodium deoxy cholate (SDOCO), oligonucleotides (GT)15, (GT)10, (AC)15, (AC)10, C10-30, and CM-cellulose (CBMC-250K) exhibited the highest quality suspensions of the various systems studied in this work. The information presented here provides a good framework for further study of SWCNT purification and applications.

IT 25155-30-0, Sdbs
(comparison of quality of aqueous dispersions of single wall carbon nanotubes using surfactants and biomols.)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 9-16 (Biochemical Methods)
Section cross-reference(s): 6, 22, 65, 66

ST carbon nanotube SWCNT dispersion solvent surfactant biomol

IT Nanotubes
(carbon; comparison of quality of aqueous dispersions of single wall carbon nanotubes using surfactants and biomols.)

IT Dispersion (of materials)
Solvents
Surfactants
(comparison of quality of aqueous dispersions of single wall carbon nanotubes using surfactants and biomols.)

IT Biochemical compounds
(comparison of quality of aqueous dispersions of single wall carbon nanotubes using surfactants and biomols.)

IT 302-95-4, Sodium deoxycholate 361-09-1, Sodium cholate 2386-53-0, Sodiumdodecyl sulfonate 8061-51-6 9004-32-4, Carboxymethyl cellulose 9012-76-4, Chitosan 21054-79-5D, Single wall carbon nanotubules 25155-30-0, Sdbs 61546-09-6D, Single wall carbon nanotubules 61546-10-9 61546-10-9D, Single wall carbon nanotubules 61546-11-0 61546-11-0D, Single wall carbon nanotubules 475575-45-2D, Single wall carbon nanotubules 640282-05-9 673855-37-3 673855-37-3D, Single wall carbon nanotubules 1027113-48-9 1027113-49-0 1027113-50-3 1027113-51-4 1027113-52-5 1027113-53-6 1027113-54-7 1027113-55-8 1027113-56-9 1027113-57-0 1027113-58-1 1027113-59-2 1027113-60-5 1027113-61-6

```
     1027113-62-7
        (comparison of quality of aqueous dispersions of single wall
        carbon nanotubes using surfactants and
        biomols.)
IT   7440-44-0P, Carbon, biological studies
        (nanotubes; comparison of quality of aqueous
        dispersions of single wall carbon
        nanotubes using surfactants and biomols.)
REFERENCE COUNT:         42    THERE ARE 42 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

L28  ANSWER 5 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2008:288338  HCAPLUS  Full-text
DOCUMENT NUMBER:         148:287310
TITLE:                   Manufacture of oriented carbon
                         nanotube/polymer nano-composite membranes
INVENTOR(S):             Marand, Eva; Kim, Sangil
PATENT ASSIGNEE(S):      Virginia Tech Intellectual Properties, Inc., USA
SOURCE:                  PCT Int. Appl., 48pp.
                         CODEN: PIXXD2
DOCUMENT TYPE:           Patent
LANGUAGE:                English
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE       APPLICATION NO.       DATE
     ---------------     ----   --------   --------------------  --------
     WO 2008028155        A2    20080306   WO 2007-US77442       20070831
     WO 2008028155        A9    20080424
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
             CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG,
             ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS,
             JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU,
             LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,
             NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL,
             SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,
             ZA, ZM, ZW
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,
             IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK,
             TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
             TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,
             ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA
PRIORITY APPLN. INFO.:                     US 2006-841146P     P  20060831

                                           US 2006-847933P     P  20060929

                                           US 2007-847585      A  20070830

ED   Entered STN:  07 Mar 2008
AB   Nano-composite membranes are manufactured consisting of a layer of oriented
      carbon nanotubes fixed in a polymeric matrix allowing the rapid transport of a
      permeate mol. or compound through the composite membrane.  The layer of
      oriented carbon nanotube is prepared by filtration.  The carbon nanotubes in
      the layer of oriented carbon nanotubes have diams. of 0.8-50 nm.  The carbon
      nanotubes may also be modified with chemical functional groups to promote
      their orientation in the carbon nanotube layer or to confer to them other
      properties.  Preferably, the chemical modification is a carboxylate
      octadecylammonium zwitterion.  The polymer matrix can be a polyimide, a
      polysulfone, a cellulose acetate, a polycarbonate, a polymethacrylate, other
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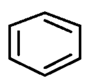
thermoplastic polymers and other glassy polymers. The composite membrane is produced by dispersion of carbon nanotubes in a solvent or surfactant, orientation of carbon nanotube on a filter by filtration, casting the polymer matrix onto the layer of oriented carbon nanotubes, removing the diluting solvent from the composite, and annealing the composite in vacuum to form the nanocomposite membrane. The polymer matrix is cast using a spin coating method, or by layering the polymer diluted in a solvent on a substrate and causing oriented carbon nanotubes to come in contact with the layer of diluted polymer. The composite membrane can be used in a respirator by allowing exchange of air and CO2 through the composite membrane and keeping out harmful airborne agents. The composite membrane can be used in a desalination process, in a channel for drug delivery, for selective chemical sensing, protein purification, and for the separation of mixed gases.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
   (dispersant; method for making oriented carbon nanotube/polymer nano-composite membranes)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO3H

Me— (CH2)11— D1

● Na

CC 47-2 (Apparatus and Plant Equipment)
   Section cross-reference(s): 38

ST oriented carbon nanotube polymer matrix composite membrane manuf filter

IT Nanotubes
   (carbon; method for making oriented carbon nanotube/polymer nano-composite membranes)

IT Membranes, nonbiological
   (composite; method for making oriented carbon nanotube/polymer nano-composite membranes)

IT Silicone rubber, processes
   (di-Me, Me hydrogen, Me vinyl, RTV615, polymer matrix; method for making oriented carbon nanotube/polymer nano-composite membranes)

IT Respirators
   (membranes for; method for making oriented carbon nanotube/polymer nano-composite membranes)

IT Membrane filters
   Permeability
   (method for making oriented carbon nanotube /polymer nano-composite membranes)

IT Acrylic polymers, uses
   Polycarbonates, uses
   Polyimides, uses

```
     Polysulfones, uses
        (polymer matrix; method for making oriented carbon
        nanotube/polymer nano-composite membranes)
IT   Coating process
        (spin; method for making oriented carbon nanotube
        /polymer nano-composite membranes)
IT   Plastics, uses
        (thermoplastics, polymer matrix; method for making oriented
        carbon nanotube/polymer nano-composite membranes)
IT   25135-51-7, Udel p-3500
        (UDEL P-3500, polymer matrix; method for making oriented
        carbon nanotube/polymer nano-composite membranes)
IT   16949-40-9, Octadecylammonium
        (carbon nanotubes modified with; method for
        making oriented carbon nanotube/polymer
        nano-composite membranes)
IT   2386-53-0, Sodium dodecylsulfonate 25155-30-0, Sodium
     dodecylbenzenesulfonate
        (dispersant; method for making oriented carbon
        nanotube/polymer nano-composite membranes)
IT   7440-44-0, Carbon, uses
        (nanotubes; method for making oriented carbon
        nanotube/polymer nano-composite membranes)
IT   74-82-8, Methane, processes   124-38-9, Carbon dioxide,
     processes
        (permeation; method for making oriented carbon
        nanotube/polymer nano-composite membranes)
IT   9004-35-7
        (polymer matrix; method for making oriented carbon
        nanotube/polymer nano-composite membranes)

L28  ANSWER 6 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2008:204223  HCAPLUS  Full-text
DOCUMENT NUMBER:          148:340984
TITLE:                    Method for preparing carbon
                          nanotube-loaded ruthenium oxide hydrate
                          composite material
INVENTOR(S):              Zhang, Milin; Zheng, Yanzhen
PATENT ASSIGNEE(S):       Harbin Engineering University, Peop. Rep. China
SOURCE:                   Faming Zhuanli Shenqing Gongkai Shuomingshu, 8pp.
                          CODEN: CNXXEV
DOCUMENT TYPE:            Patent
LANGUAGE:                 Chinese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE       APPLICATION NO.        DATE
     ---------------     ----   --------   --------------------   --------
     CN 101122040         A     20080213   CN 2007-10072229       20070521
PRIORITY APPLN. INFO.:                     CN 2007-10072229       20070521

ED   Entered STN:  19 Feb 2008
AB    The title method comprises the steps of: (1) proportionally mixing ruthenium
      trichloride, nitrates, and surfactants with water to obtain an
      electrodeposition solution, (2) dispersing carbon nanotubes in the
      electrodeposition solution, (3) electrodepositing to deposit ruthenium
      hydroxide on the carbon nanotubes to obtain the precursor of carbon nanotube-
      loaded ruthenium oxide hydrate composite material, (4) controlling the
      electrodeposition period, adjusting the pH value, and stirring to stable the
      carbon nanotubes /ruthenium precipitate, and (5) placing the electrodeposited
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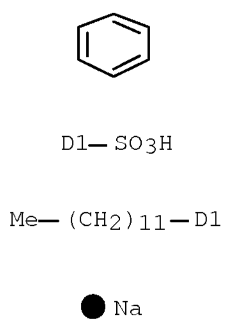
carbon nanotubes/ruthenium hydroxide precipitate into an oven, heat-treating, and naturally cooling to obtain the final product. The method has the advantages of simple conditions, being a simple process, high product purity, and high yield, and is suitable for industrial production

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(method for preparing carbon nanotube-loaded ruthenium oxide hydrate composite material)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 72-2 (Electrochemistry)
Section cross-reference(s): 52, 57, 76

ST carbon nanotube ruthenium oxide hydrate composite material prodn

IT Nanotubes
(carbon; method for preparing carbon nanotube-loaded ruthenium oxide hydrate composite material)

IT Capacitor electrodes
Ceramic composites
Electrodeposition
Nanocomposites
Oxidation, electrochemical
(method for preparing carbon nanotube-loaded ruthenium oxide hydrate composite material)

IT Nitrates, uses
Polyoxyalkylenes, uses
(method for preparing carbon nanotube-loaded ruthenium oxide hydrate composite material)

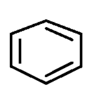
IT 12036-10-1P, Ruthenium oxide (RuO2)
(method for preparing carbon nanotube-loaded ruthenium oxide hydrate composite material)

IT 6484-52-2, Ammonium nitrate, uses 7631-99-4, Sodium nitrate, uses 7757-79-1, Potassium nitrate, uses 9002-89-5, Polyvinyl alcohol 25155-30-0, Sodium dodecylbenzenesulfonate 25322-68-3, Polyethylene glycol
(method for preparing carbon nanotube-loaded ruthenium oxide hydrate composite material)

IT 10049-08-8, Ruthenium trichloride
(method for preparing carbon nanotube-loaded ruthenium oxide hydrate composite material)

IT 7440-44-0, Carbon, uses
(nanotubes; method for preparing carbon nanotube-loaded ruthenium oxide hydrate composite material)

L28 ANSWER 7 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2008:30727 HCAPLUS Full-text
DOCUMENT NUMBER: 148:309031
TITLE: Preparation of Semi-aromatic polyamide (PA)/multi-wall carbon nanotube (MWCNT) composites and its dynamic mechanical properties
AUTHOR(S): Song, Rui; Yang, Debin; He, Linghao
CORPORATE SOURCE: College of Materials and Chemical Engineering, Zhengzhou University of Light Industry, Zhengzhou, 450003, Peop. Rep. China
SOURCE: Journal of Materials Science (2008), 43(4), 1205-1213
CODEN: JMTSAS; ISSN: 0022-2461
PUBLISHER: Springer
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 09 Jan 2008
AB Well dispersed semi-aromatic polyamide (PA)/multi-wall carbon nanotube (MWCNT) composite was prepared through high-speed shearing method in the presence of surfactant sodium dodecylbenzene sulfonate (SDBS). Further anal. of morphol., crystallization, and dynamical mech. properties shows the presence of SDBS helps to disperse the MWCNT and largely enhance the mech. property. In comparison with neat PA component, the storage modulus (E') of the blend system at 90° is 3.5 times larger than PA with MWCNT load ratio of 3 weight%; and meanwhile the glass transition temperature (Tg) of PA component increases about 17°; Similar phenomena have not found in MWCNT/PA composite without surfactant. Simultaneously, as DSC and morphol. measurements indicate, the filled MWCNT does not show tremendous effect on the crystalline phase and crystallinity of PA, which imply that the increasing mech. property for composites is due to the strengthening effect of MWCNT itself, not being caused by the change of crystalline phase and crystallinity by the addition of MWCNT. The increasing Tg, indicative of the restricting movement of PA chains, is most probably ascribe to the strong interaction presented between MWCNT and PA chains.
IT 25155-30-0, Sodium dodecylbenzene sulfonate
(for preparation of semi-aromatic polyamide/multi-wall carbon nanotube composites)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO_3H

Me— $(CH_2)_{11}$ —D1

● Na

```
CC   37-6 (Plastics Manufacture and Processing)
ST   polyamide carbon nanotube composite morphol crystn
     mech property
IT   Surfactants
        (anionic; for preparation of semi-aromatic polyamide/multi-wall
        carbon nanotube composites)
IT   Nanotubes
        (carbon; preparation of semi-aromatic polyamide/multi-wall
        carbon nanotube composites and its dynamic mech.
        properties)
IT   Crystallization
     Fusion enthalpy
     Microstructure
     Polymer morphology
     Storage modulus
     Stress-strain relationship
     Thermal stability
        (preparation of semi-aromatic polyamide/multi-wall carbon
        nanotube composites and its dynamic mech. properties)
IT   Complex modulus
        (tan δ; preparation of semi-aromatic polyamide/multi-wall
        carbon nanotube composites and its dynamic mech.
        properties)
IT   25155-30-0, Sodium dodecylbenzene
     sulfonate
        (for preparation of semi-aromatic polyamide/multi-wall carbon
        nanotube composites)
IT   7440-44-0, Carbon, uses
        (nanotubes; preparation of semi-aromatic polyamide/multi-wall
        carbon nanotube composites and its dynamic mech.
        properties)
IT   100-21-0D, Terephthalic acid, polymers with isophthalic acid and
     aliphatic diamines   121-91-5D, Isophthalic acid, polymers with
     terephthalic acid and aliphatic diamines
        (preparation of semi-aromatic polyamide/multi-wall carbon
        nanotube composites and its dynamic mech. properties)
REFERENCE COUNT:         33    THERE ARE 33 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

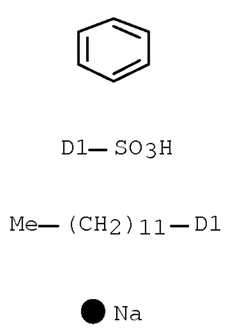
L28  ANSWER 8 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2008:23159  HCAPLUS  Full-text
DOCUMENT NUMBER:         148:264765
TITLE:                   Large Populations of Individual Nanotubes
                         in Surfactant-Based Dispersions
                         without the Need for Ultracentrifugation
AUTHOR(S):               Bergin, Shane D.; Nicolosi, Valeria; Cathcart,
                         Helen; Lotya, Mustafa; Rickard, David; Sun,
                         Zhenyu; Blau, Werner J.; Coleman, Jonathan N.
CORPORATE SOURCE:        School of Physics, Trinity College Dublin,
                         University of Dublin, Dublin, 2, Ire.
SOURCE:                  Journal of Physical Chemistry C (2008), 112(4),
                         972-977
                         CODEN: JPCCCK; ISSN: 1932-7447
PUBLISHER:               American Chemical Society
DOCUMENT TYPE:           Journal
LANGUAGE:                English
ED   Entered STN:  08 Jan 2008
AB   Stable dispersions of single-walled carbon nanotubes were produced using the
     surfactant sodium dodecylbenzene sulfonate (SDBS). Atomic force microscopy
```

anal. shows that, on dilution of these dispersions, the nanotubes exfoliate from bundles, resulting in a concentration-dependent bundle diameter distribution which sats. at Drms ≈ 2 nm for concns., CNT < 0.05 mg/mL. The total bundle number d. increases with concentration, saturating at .apprx.6 bundles per µm3 for CNT > 0.05 mg/mL. As the concentration is reduced the number fraction of individual nanotubes grows, approaching 50% at low concentration In addition, partial concns. of individual SWNTs approaching 0.01 mg/mL can be realized. These values are far superior to those for solvent dispersions due to repulsion stabilization of the surfactant-coated nanotubes. These methods facilitate the preparation of high-quality nanotube dispersions without the need for ultracentrifugation, thus significantly increasing the yield of dispersed nanotubes.

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(large populations of individual carbon nanotubes in surfactant-based dispersions without the need for ultracentrifugation)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 46-3 (Surface Active Agents and Detergents)
Section cross-reference(s): 57, 66

ST carbon nanotube surfactant based dispersion ultracentrifugation

IT Nanotubes
(carbon; large populations of individual carbon nanotubes in surfactant-based dispersions without the need for ultracentrifugation)

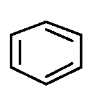
IT Dispersion (of materials)
Particle size distribution
Ultracentrifugation
(large populations of individual carbon nanotubes in surfactant-based dispersions without the need for ultracentrifugation)

IT 9002-93-1, Triton X-100 25155-30-0, Sodium dodecylbenzene sulfonate
(large populations of individual carbon nanotubes in surfactant-based dispersions without the need for ultracentrifugation)

IT 7440-44-0, Carbon, properties
(nanotubes; large populations of individual carbon nanotubes in surfactant-based dispersions without the need for ultracentrifugation)

REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 9 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:1448289 HCAPLUS Full-text
DOCUMENT NUMBER: 148:247169
TITLE: Investigation of Sodium Dodecyl Benzene Sulfonate Assisted Dispersion and Debundling of Single-Wall Carbon Nanotubes
AUTHOR(S): Priya, B. R.; Byrne, H. J.
CORPORATE SOURCE: FOCAS Institute/School of Physics, Dublin Institute of Technology, Dublin, 8, Ire.
SOURCE: Journal of Physical Chemistry C (2008), 112(2), 332-337
CODEN: JPCCCK; ISSN: 1932-7447
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 21 Dec 2007
AB The dispersion limit of HiPco single-wall carbon nanotubes (SWCNT) in 1% by weight sodium dodecyl benzene sulfonate (SDBS) assisted dispersions in water is reported. The starting concentration of the tubes in water surfactant solution was 5 mg/mL which was diluted sequentially by a factor of 2 down to 1.2 + 10-3 mg/mL. Sonication and centrifugation were performed to obtain a homogeneous dispersion of HiPco SWCNTs in water surfactant solution Concentration-dependent absorption and Raman spectroscopic studies were used to analyze the SWCNTs behavior in water-based solution, and atomic force microscopy (AFM) was employed to examine the aggregation state of the nanotubes over the concentration range. Both spectroscopic techniques demonstrate a clear concentration below which the nanotube bundles become significantly dispersed in the solution The concentration limit at which debundling starts was found to be 0.07 ± 0.03 mg/mL. The dispersion behavior and optical parameters determined are compared with those established for other solvent media.
IT 25155-30-0, Sodium dodecyl benzene sulfonate
(preparation of dispersion and debundling of single-walled carbon nanotube with sodium dodecyl benzene sulfonate)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO_3H

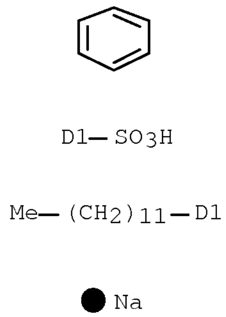
Me— $(CH_2)_{11}$ —D1

● Na

CC 66-4 (Surface Chemistry and Colloids)

ST sodium dodecyl benzene sulfonate dispersion debundling
carbon nanotube
IT Nanotubes
(carbon, single-walled; preparation of dispersion
and debundling of single-walled carbon nanotube
with sodium dodecyl benzene sulfonate)
IT Sols
(preparation of dispersion and debundling of single-walled
carbon nanotube with sodium dodecyl benzene
sulfonate)
IT 7440-44-0, Carbon, processes
(nanotubes, single-walled; preparation of dispersion
and debundling of single-walled carbon nanotube
with sodium dodecyl benzene sulfonate)
IT 25155-30-0, Sodium dodecyl benzene sulfonate
(preparation of dispersion and debundling of single-walled
carbon nanotube with sodium dodecyl benzene
sulfonate)
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

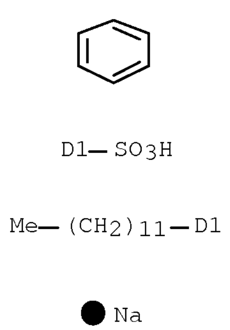
L28 ANSWER 10 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:1422962 HCAPLUS Full-text
DOCUMENT NUMBER: 148:104486
TITLE: Single-walled carbon nanotube
silica composites obtained by an inorganic sol-gel
route
AUTHOR(S): Jung de Andrade, M.; Lima, M. Dias; Stein, L.;
Bergmann, C. Perez; Roth, S.
CORPORATE SOURCE: Federal University of Rio Grande do Sul, Porto
Alegre, 90035190, Brazil
SOURCE: Physica Status Solidi B: Basic Solid State Physics
(2007), 244(11), 4218-4222
CODEN: PSSBBD; ISSN: 0370-1972
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 14 Dec 2007
AB A incorporation of single-walled carbon nanotubes (SWCNTs) into silica matrix
prepared using an inorg. sol-gel method is reported. Through this route non-
aqueous solvents are avoided and the stability of the carbon nanotubes
suspensions is not affected. SWCNTs produced by Catalytic Chemical Vapor
Deposition (CCVD) were dispersed in deionized water using an amphiphilic
surfactant. As a precursor for the silica matrix an inexpensive silicic acid
was used. By this route SWCNTs/silica composites were produced in the form of
films and pellets. Microhardness measurements and electron microscopy suggest
an important interaction between SWCNTs and the silica matrix what is
important from the application point of view.
IT 25155-30-0, Sodium Dodecylbenzenesulfonate
(single-walled carbon nanotube silica
composites obtained by prepared by sol-gel route)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 57-8 (Ceramics)
ST silica carbon nanotube nanocomposite sol gel processing
IT Nanotubes
  (carbon; single-walled carbon nanotube silica composites obtained by prepared by sol-gel route)
IT Electric conductivity
  Fracture surface morphology
  Microhardness
  Nanocomposites
  Sol-gel processing
  (single-walled carbon nanotube silica composites obtained by prepared by sol-gel route)
IT 7440-44-0, Carbon, processes
  (nanotubes; single-walled carbon nanotube silica composites obtained by prepared by sol-gel route)
IT 25155-30-0, Sodium Dodecylbenzenesulfonate
  (single-walled carbon nanotube silica composites obtained by prepared by sol-gel route)
IT 1344-09-8, Sodium silicate
  (single-walled carbon nanotube silica composites obtained by prepared by sol-gel route)
IT 7631-86-9P, Silica, preparation
  (single-walled carbon nanotube silica composites obtained by prepared by sol-gel route)
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 11 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:1413280 HCAPLUS Full-text
DOCUMENT NUMBER: 148:178140
TITLE: Direct Observation of Deep Excitonic States in the Photoluminescence Spectra of Single-Walled Carbon Nanotubes
AUTHOR(S): Kiowski, Oliver; Arnold, Katharina; Lebedkin, Sergei; Hennrich, Frank; Kappes, Manfred M.
CORPORATE SOURCE: Institut fur Nanotechnologie, Forschungszentrum Karlsruhe, Karlsruhe, 76021, Germany
SOURCE: Physical Review Letters (2007), 99(23), 237402/1-237402/4
CODEN: PRLTAO; ISSN: 0031-9007
PUBLISHER: American Physical Society

DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 12 Dec 2007
AB Low-energy, dark excitonic states have recently been predicted to lie below the 1st bright (E11) exciton in semiconducting single-walled C nanotubes. Decay into such deep excitonic states is implicated as a mechanism which reduces photoluminescence quantum yields. The authors report the 1st direct observation of deep excitons in SWNTs. Photoluminescence (PL) microscopy of suspended semiconducting single-walled C nanotubes (SWNTs) reveals weak emission satellites red shifted by .apprx.38-45 and .apprx.100-130 meV relative to the main E11 PL emission peaks. Similar satellites, red shifted by 95-145 meV depending on nanotube species, were also found in PL measurements of ensembles of SWNTs in H2O-surfactant dispersions. The relative intensities of these deep exciton emission features depend on the nanotube surroundings.
IT 25155-30-0, SDBS
(direct observation of deep excitonic states in photoluminescence spectra of single-walled carbon nanotubes)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)

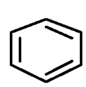


CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
ST deep exciton luminescence single walled carbon nanotube
IT Nanotubes
(carbon; direct observation of deep excitonic states in photoluminescence spectra of single-walled carbon nanotubes)
IT Exciton
Luminescence
Surfactants
(direct observation of deep excitonic states in photoluminescence spectra of single-walled carbon nanotubes)
IT 151-21-3, SDS, properties 25155-30-0, SDBS
(direct observation of deep excitonic states in photoluminescence spectra of single-walled carbon nanotubes)
IT 7440-44-0, Carbon, properties
(nanotubes; direct observation of deep excitonic states in photoluminescence spectra of single-walled carbon nanotubes)
IT 7789-20-0, Water-d2
(solvent; direct observation of deep excitonic states in

photoluminescence spectra of single-walled carbon nanotubes)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 12 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:1387589 HCAPLUS Full-text
DOCUMENT NUMBER: 149:161280
TITLE: Stability of aqueous suspension containing carbon nanotubes
AUTHOR(S): Hao, Su-ju; Zhang, Yu-zhu; Jiang, Wu-feng; Pang, Zhen-li
CORPORATE SOURCE: School of Materials & Metallurgy, Northeastern University, Shenyang, 110004, Peop. Rep. China
SOURCE: Dongbei Daxue Xuebao, Ziran Kexueban (2007), 28(10), 1438-1441
CODEN: DDXKEZ; ISSN: 1005-3026
PUBLISHER: Dongbei Daxue Xuebao Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
ED Entered STN: 06 Dec 2007
AB A suspension of carbon nanotubes as nanofluids was prepared by dispersing carbon nanotubes into deionized water. The effects of several typical kinds of surfactants such as sodium dodecyl benzene sulfonate, hexadecyl tri-Me ammonium bromide and emulsifying agent OP on the stability of the nanofluid were studied by stationary and centrifugal tests with sample morphologies characterized by SEM and transmission electron microscopy. The results showed that the carbon nanotubes can not be dispersed homogeneously in water without surfactant, but the stability of the nanofluid in which a surfactant has been added is enhanced significantly and then it can be kept up for several months. There is a best concentration of surfactant to make the stability optimal and a best stability is obtained if OP surfactant is used.
IT 25155-30-0, Sodium dodecylbenzene sulfonate
(stability of aqueous suspension containing carbon nanotubes)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO_3H

Me— $(CH_2)_{11}$ —D1

● Na

CC 66-4 (Surface Chemistry and Colloids)
ST aq suspension carbon nanotube stability
IT Nanotubes

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        (carbon; stability of aqueous suspension containing
        carbon nanotubes)
IT   Nanofluids
     Surface structure
        (stability of aqueous suspension containing carbon
        nanotubes)
IT   7440-44-0, Carbon, properties
        (nanotubes; stability of aqueous suspension containing
        carbon nanotubes)
IT   57-09-0, Hexadecyltrimethylammonium bromide   9036-19-5, OP
     25155-30-0, Sodium dodecylbenzene
     sulfonate
        (stability of aqueous suspension containing carbon
        nanotubes)

L28  ANSWER 13 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2007:1152245  HCAPLUS  Full-text
DOCUMENT NUMBER:          147:504607
TITLE:                    Method for dispersing carbon
                          nanotubes
INVENTOR(S):              Zhou, Shengming; Zhang, Xiaobin; Mi, Yuhong; Jiao,
                          Zhihui
PATENT ASSIGNEE(S):       Zhejiang University, Peop. Rep. China
SOURCE:                   Faming Zhuanli Shenqing Gongkai Shuomingshu, 6pp.
                          CODEN: CNXXEV
DOCUMENT TYPE:            Patent
LANGUAGE:                 Chinese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE       APPLICATION NO.        DATE
     ---------------     ----   --------   --------------------   --------
     CN 101049926         A     20071010   CN 2007-10068641       20070515
PRIORITY APPLN. INFO.:                     CN 2007-10068641       20070515

ED   Entered STN:  12 Oct 2007
AB    A method for dispersing carbon nanotubes includes (1) dispersing carbon
      nanotubes in water by mixed acid ultrasonic treatment or surfactant treatment
      to form a stable suspension, (2) placing the carbon nanotube suspension in a
      freeze drier, quenching to -40°, holding at the temperature for 1-2 h, vacuum
      pumping to <100 Pa, drying for 8-16 h; (3) holding the vacuum degree, segment
      heating to -30°, -20°, -10°, 0°, 10°, 25°, at each segment drying for 1-10 h
      to obtain a dispersed spongy carbon nanotubes powder.  The surfactant can be
      sodium dodecyl benzene sulfonate or deoxysodium cholate.
IT   25155-30-0, Sodium dodecyl benzene sulfonate
        (dispersing carbon nanotubes)
RN   25155-30-0  HCAPLUS
CN   Benzenesulfonic acid, dodecyl-, sodium salt (1:1)  (CA INDEX NAME)
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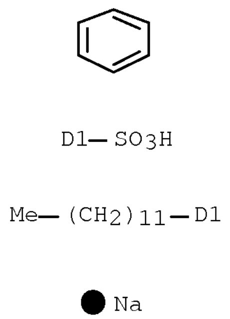


CC 49-1 (Industrial Inorganic Chemicals)
Section cross-reference(s): 66
ST dispersed spongy carbon nanotube powder
prepn ultrasonication surfactant
IT Nanotubes
(carbon; dispersing carbon
nanotubes)
IT Dispersion (of materials)
Freeze drying
Surfactants
(dispersing carbon nanotubes)
IT Sonication
(ultrasonication; dispersing carbon
nanotubes)
IT 302-95-4, Sodium deoxycholate 25155-30-0, Sodium dodecyl
benzene sulfonate
(dispersing carbon nanotubes)
IT 7664-93-9, Sulfuric acid, processes 7697-37-2, Nitric acid,
processes
(dispersing carbon nanotubes)
IT 7440-44-0, Carbon, properties
(nanotubes; dispersing carbon
nanotubes)

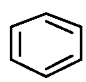
L28 ANSWER 14 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:1112414 HCAPLUS Full-text
DOCUMENT NUMBER: 148:562611
TITLE: Highly selective dispersion of single-walled carbon nanotubes using aromatic polymers
AUTHOR(S): Nish, Adrian; Hwang, Jeong-Yuan; Doig, James; Nicholas, Robin J.
CORPORATE SOURCE: Clarendon Laboratory, Oxford, OX1 3PU, UK
SOURCE: Nature Nanotechnology (2007), 2(10), 640-646
CODEN: NNAABX; ISSN: 1748-3387
PUBLISHER: Nature Publishing Group
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 Oct 2007
AB Solubilizing and purifying carbon nanotubes remains one of the foremost technol. hurdles in their investigation and application. We report a dramatic improvement in the preparation of single-walled carbon nanotube solns. based on the ability of specific aromatic polymers to efficiently disperse certain nanotube species with a high degree of selectivity. Evidence of this is

provided by optical absorbance and photoluminescence excitation spectra, which show suspensions corresponding to up to .apprx.60% relative concentration of a single species of isolated nanotubes with fluorescence quantum yields of up to 1.5%. Different polymers show the ability to discriminate between nanotube species in terms of either diameter or chiral angle. Modeling suggests that rigid-backbone polymers form ordered mol. structures surrounding the nanotubes with n-fold symmetry determined by the tube diameter

IT 25155-30-0, Sodium dodecylbenzenesulfonate
   (highly selective dispersion of single-walled
   carbon nanotubes using aromatic polymers)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO_3H

Me— $(CH_2)_{11}$ —D1

● Na

CC 37-6 (Plastics Manufacture and Processing)
   Section cross-reference(s): 73

ST arom polymer carbon nanotube dispersion
   optical absorbance photoluminescence

IT Surfactants
   (anionic; highly selective dispersion of single-walled
   carbon nanotubes using aromatic polymers)

IT Nanotubes
   (carbon; highly selective dispersion of
   single-walled carbon nanotubes using aromatic
   polymers)

IT Dispersion (of materials)
   Luminescence
   Molecular structure
   (highly selective dispersion of single-walled
   carbon nanotubes using aromatic polymers)

IT 25155-30-0, Sodium dodecylbenzenesulfonate 210347-52-7
   874816-14-5 1010129-39-1 1025775-95-4
   (highly selective dispersion of single-walled
   carbon nanotubes using aromatic polymers)

IT 7440-44-0, Carbon, properties
   (nanotubes; highly selective dispersion of
   single-walled carbon nanotubes using aromatic
   polymers)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 15 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:1081664 HCAPLUS Full-text

DOCUMENT NUMBER: 147:386817
TITLE: Heat-resistant and antistatic resin compositions containing nanosize fillers, their moldings, and their coated or printed moldings
INVENTOR(S): Yamazaki, Takao
PATENT ASSIGNEE(S): Sanyo Chemical Industries, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 43pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
JP 2007246878	A	20070927	JP 2006-296963		20061031
PRIORITY APPLN. INFO.:			JP 2005-320217	A	20051102
			JP 2006-36831	A	20060214

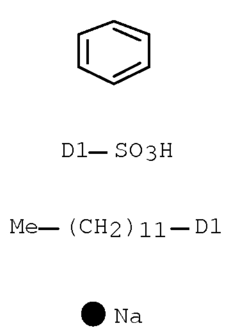
ED Entered STN: 27 Sep 2007

AB The compns. comprise (A) hydrophilic polymers with volume intrinsic resistivity 1 + 107-1 + 1012 Ω-cm and (B) inorg. fillers with short diameter 1-10 nm and aspect ratio 100-1000 in the compns. Thus, a composition comprising polypropylene-polyethylene glycol block copolymer and organic-modified clay (Nanofil 8) was kneaded with polycarbonate/ABS resin mixture (Cycoloy CY 6120) and molded to give a test piece showing impact strength 210 J/m, volume intrinsic resistivity 5 + 1011 Ω-cm, and UL 94 fire resistance rating V-0.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(surfactant; heat-resistant and antistatic resin compns. containing nanosize fillers for moldings)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 37-6 (Plastics Manufacture and Processing)

ST antistatic hydrophilic polymer inorg filler dispersibility nanosize; clay nanofiller heat resistance antistatic polypropylene polyoxyethylene block

IT Nanotubes
(carbon; heat-resistant and antistatic resin compns. containing nanosize fillers for moldings)

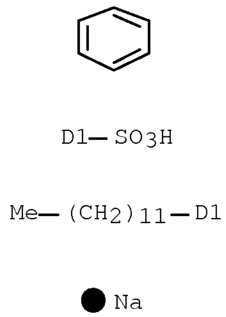
IT 7440-44-0, MWNT-A-P, uses

(MWNT-A-P, nanotubes; heat-resistant and
antistatic resin compns. containing nanosize fillers for moldings)
IT 25155-30-0, Sodium dodecylbenzenesulfonate
(surfactant; heat-resistant and antistatic resin compns.
containing nanosize fillers for moldings)

L28 ANSWER 16 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:919845 HCAPLUS Full-text
DOCUMENT NUMBER: 147:324497
TITLE: Method for preparing lyocell fiber containing carbon nanotubes
INVENTOR(S): Shao, Huili; Lu, Jiang; Zhang, Huihui; Yang, Gesheng; Hu, Xuechao
PATENT ASSIGNEE(S): Donghua University, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 101016659	A	20070815	CN 2007-10036886	20070126
PRIORITY APPLN. INFO.:			CN 2007-10036886	20070126

ED Entered STN: 20 Aug 2007
AB The title method comprises the steps of: washing carbon nanotubes with strong oxidizing acid (nitric acid, sulfuric acid, hydrochloric acid, or their mixture) or oxidant (potassium permanganate and/or potassium dichromate) to prepare purified carbon nanotubes; ultrasonic treating the carbon nanotubes in 1-10% aqueous solution of surfactant (sodium dodecylbenzenesulfonate, sodium dodecylsulfate, acacia gum, cetyltrimethylammonium bromide, starch, titanate coupling agent, or their mixture), centrifuging, filtering, drying, and grinding to obtain surface-functionalized carbon nanotubes; cutting cellulose cotton pulp or wood pulp with polymerization degree of 400-1,000 to obtain slices with size of 0.5-4 cm+0.5-4 cm and vacuum drying at 30-50 °C for 6-12 h to water content of 2-4%; concentrating N-methylmorpholine-N-oxide (NMMO) aqueous solution under reduced pressure to water content of 20-30%; ultrasonic dispersing the carbon nanotubes into NMMO solution at a weight ratio of 1:(60-20,000) for 1-3 h to obtain a mixture of carbon nanotubes and NMMO aqueous solution; mixing the mixture with the slices to obtain a spinning raw solution with water content of 12-14%; and performing conventional dry-wet spinning to obtain carbon nanotubes/Lyocell composite fiber containing 0.1-10 wt% of carbon nanotubes. The composite Lyocell filter has improved mech. properties and conductivity, and can be widely used as reinforcing material, antistatic material, heat-conducting material, and cellulose-based carbon fiber material.
IT 25155-30-0, Sodium dodecylbenzenesulfonate
(method for preparing lyocell fiber containing carbon
nanotubes)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 40-7 (Textiles and Fibers)
ST carbon nanotube contg lyocell prepn
IT Nanotubes
(carbon; method for preparing lyocell fiber containing carbon nanotubes)
IT Antistatic agents
Cellulose pulp
Fillers
Thermal conductors
(method for preparing lyocell fiber containing carbon nanotubes)
IT Rayon, uses
(reconstituted; method for preparing lyocell fiber containing carbon nanotubes)
IT 7529-22-8, N-Methylmorpholine-N-oxide
(method for preparing lyocell fiber containing carbon nanotubes)
IT 57-09-0, Cetyltrimethylammonium bromide 151-21-3, Sodium dodecylsulfate, uses 7647-01-0, Hydrochloric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses 7722-64-7, Potassium permanganate 7778-50-9, Potassium dichromate 9000-01-5, Arabic gum 9005-25-8, Starch, uses 25155-30-0, Sodium dodecylbenzenesulfonate
(method for preparing lyocell fiber containing carbon nanotubes)
IT 7440-44-0, Carbon, uses
(nanotubes; method for preparing lyocell fiber containing carbon nanotubes)

L28 ANSWER 17 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:850653 HCAPLUS Full-text
DOCUMENT NUMBER: 147:244440
TITLE: Method for preparation of Pt-nano electric catalyst based on metal group compound
INVENTOR(S): Yang, Hui
PATENT ASSIGNEE(S): Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 9pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	CN 101007272	A	20070801	CN 2006-10119019	20061201
PRIORITY APPLN. INFO.:				CN 2006-10119019	20061201

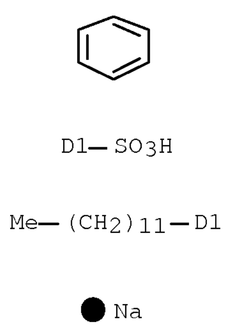
ED Entered STN: 06 Aug 2007

AB The preparation comprises preparing 0.5-15 mg/mL Pt salt (Pt chloride or nitrate)-methanol, ethanol, propanone, water or their mixture, adding NaOH, Na_2CO_3, etc. under controlling pH 7.5-14, bubbling inert air or CO to remove air in the system, reacting to obtain metal group compound solution in CO or its mixed gas with inert gas at 0-80°, adding C support or surfactant (sodium dodecyl benzosulfonate anion type or cetyl 3-Me ammonium bromide cation type) dispersed C support (support C is activated C, single wall nanotube, multiwall nanotube, etc.), stirring, removing solvent at 30-120° in inert gas and/or CO protection, filtering, washing, drying, treating at 100-150° for 10 min-8 h in inert gas, hydrogen, and/or CO protection. The obtained Pt nano elec. catalyst with grain size 1.8-20 nm is C supported type or non supported type, and is used as cathode catalyst of proton exchange membrane fuel cell.

IT 25155-30-0, Sodium dodecyl benzene sulfonate
(method for preparation of Pt-nano elec. catalyst based on metal group compound)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 52

ST platinum nanoparticle fuel cell cathode catalyst carbon

IT Nanotubes
(carbon; method for preparation of Pt-nano elec. catalyst based on metal group compound)

IT Carbon fibers, uses
(catalyst support; method for preparation of Pt-nano elec. catalyst based on metal group compound)

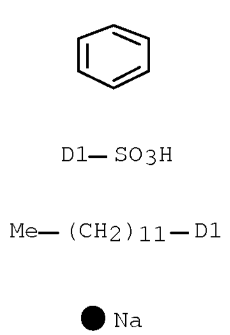
IT Nanoparticles
Surfactants
X-ray diffraction
(method for preparation of Pt-nano elec. catalyst based on metal group compound)

IT 7440-44-0, Activated carbon, uses
(activated; method for preparation of Pt-nano elec. catalyst based on metal group compound)

IT 57-09-0, Cetyl trimethyl ammonium bromide 25155-30-0, Sodium

dodecyl benzene sulfonate
(method for preparation of Pt-nano elec. catalyst based on metal group compound)

L28 ANSWER 18 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:829312 HCAPLUS Full-text
DOCUMENT NUMBER: 147:395695
TITLE: Large Area-Aligned Arrays from Direct Deposition of Single-Wall Carbon Nanotube Inks
AUTHOR(S): Simmons, Trevor J.; Hashim, Daniel; Vajtai, Robert; Ajayan, Pulickel M.
CORPORATE SOURCE: Department of Material Science & Engineering, Department of Chemistry & Chemical Biology, and Rensselaer Nanotechnology Center, Rensselaer Polytechnic Institute, Troy, NY, 12180, USA
SOURCE: Journal of the American Chemical Society (2007), 129(33), 10088-10089
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 31 Jul 2007
AB Single-wall carbon nanotubes (SWNTs) are well dispersed in water using a polymer, polyvinylpyrrolidone (PVP), a surfactant, sodium dodecylbenzenesulfonate (SDBS), and brief low-power sonication. The concentration of these pristine SWNT dispersions are quite high, approaching 1 g/L, and remain stable over several months. These suspensions can be used as a printable conductive material and were used to create novel self-assembled SWNT arrays which are highly aligned. Suspensions of pristine SWNTs in water enable their application to aqueous chemical, reduce environmental impact from use of organic solvents, and create suspensions which are compatible with materials sensitive to harsh solvents. Avoiding covalent functionalization allows for the SWNTs to have optimum mech. and electronic properties and maintain lengths of several micrometers.
IT 25155-30-0, Sodium dodecylbenzenesulfonate
(surfactant; large area-aligned arrays from direct deposition of single-wall carbon nanotube inks)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 76-2 (Electric Phenomena)
Section cross-reference(s): 66, 74

```
ST   carbon nanotube suspension elec cond
     printing ink
IT   Nanotubes
        (carbon; large area-aligned arrays from direct deposition
        of single-wall carbon nanotube inks)
IT   Electric resistance
     Self-assembly
     Sonication
       Suspensions
        (large area-aligned arrays from direct deposition of single-wall
        carbon nanotube inks)
IT   Inks
        (printing, elec. conducting; large area-aligned arrays from direct
        deposition of single-wall carbon nanotube inks)
IT   9003-39-8, Poly(vinylpyrrolidone)
        (dispersant; large area-aligned arrays from direct
        deposition of single-wall carbon nanotube inks)
IT   7647-14-5, Sodium chloride, uses
        (electrolyte; large area-aligned arrays from direct deposition of
        single-wall carbon nanotube inks)
IT   7440-44-0, Carbon, processes
        (nanotubes; large area-aligned arrays from direct
        deposition of single-wall carbon nanotube inks)
IT   25155-30-0, Sodium dodecylbenzenesulfonate
        (surfactant; large area-aligned arrays from direct
        deposition of single-wall carbon nanotube inks)
REFERENCE COUNT:         18    THERE ARE 18 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

L28  ANSWER 19 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2007:772566  HCAPLUS  Full-text
DOCUMENT NUMBER:         147:240861
TITLE:                   In-situ solution preparation of Au nanoparticle
                         uniformly cladding carbon
                         nanotube composite
INVENTOR(S):             Chen, Hongzheng; Zhou, Renjia; Wang, Mang
PATENT ASSIGNEE(S):      Zhejiang University, Peop. Rep. China
SOURCE:                  Faming Zhuanli Shenqing Gongkai Shuomingshu, 10pp.
                         CODEN: CNXXEV
DOCUMENT TYPE:           Patent
LANGUAGE:                Chinese
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
     CN 1994625           A     20070711    CN 2006-10155580       20061229
PRIORITY APPLN. INFO.:                      CN 2006-10155580       20061229

ED   Entered STN:  17 Jul 2007
AB    The preparation method comprises adding carbon nanotubes in strong acid
      solution, passivating under ultrasonic condition, adding surfactant,
      dispersing with ultrasonic treatment, adding 0.1-100 mmol/l chloroauric acid,
      stirring at room temperature for 1 min-24 h to obtain carbon nanotube
      composite, and centrifugally separating  Another preparation method involves
      adding carbon nanotubes in aromatic organic solvent, stirring or
      ultrasonically treating, adding 0.1-100 mmol/l chloroauric acid, stirring at
      room temperature for 1 min-24 h to obtain carbon nanotube composite, and
      centrifugally separating  The obtained nanocomposite has good dispersibility
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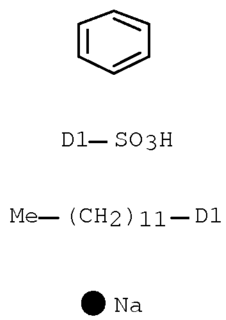
and stability in water and organic solvents, and may be used for sensors, catalyst, bio-fluorescent label, LED, etc.

IT 25155-30-0, Sodium dodecyl benzene sulfonate
(in-situ solution preparation of gold nanoparticles uniformly cladding carbon nanotube composite)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 56-13 (Nonferrous Metals and Alloys)
Section cross-reference(s): 9, 66, 67, 73

ST gold nanoparticle carbon nanotube composite prepn

IT Nanotubes
(carbon; in-situ solution preparation of gold nanoparticles uniformly cladding carbon nanotube composite)

IT Nanoparticles
(gold; in-situ solution preparation of gold nanoparticles uniformly cladding carbon nanotube composite)

IT Catalysts
Centrifugation
Electroluminescent devices
Fluorescent indicators
Nanocomposites
Particle size
Sensors
Sound and Ultrasound
(in-situ solution preparation of gold nanoparticles uniformly cladding carbon nanotube composite)

IT Particles
(ultrafine, gold; in-situ solution preparation of gold nanoparticles uniformly cladding carbon nanotube composite)

IT 81-33-4D, aminoalkyl or mercaptoalkyl derivs. 9005-67-8, Tween 60
25155-30-0, Sodium dodecyl benzene sulfonate
(in-situ solution preparation of gold nanoparticles uniformly cladding carbon nanotube composite)

IT 16903-35-8, Chloroauric acid
(in-situ solution preparation of gold nanoparticles uniformly cladding carbon nanotube composite)

IT 7440-57-5P, Gold, preparation
(nanoparticles; in-situ solution preparation of gold nanoparticles uniformly cladding carbon nanotube composite)

IT 7440-44-0, Carbon, processes
(nanotubes; in-situ solution preparation of gold nanoparticles uniformly cladding carbon nanotube composite)

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L28  ANSWER 20 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2007:772267  HCAPLUS  Full-text
DOCUMENT NUMBER:          147:236279
TITLE:                    Method for preparing conductive polymer-
                          carbon nanotube composite
                          electrode material
INVENTOR(S):              Xu, Youlong; Wang, Jie; Sun, Xiaofei; Xiao, Fang
PATENT ASSIGNEE(S):       Xi'an Jiao Tong University, Peop. Rep. China
SOURCE:                   Faming Zhuanli Shenqing Gongkai Shuomingshu, 10pp.
                          CODEN: CNXXEV
DOCUMENT TYPE:            Patent
LANGUAGE:                 Chinese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE       APPLICATION NO.        DATE
     ---------------     ----   --------   --------------------   --------
     CN 1995132           A     20070711   CN 2006-10105269       20061226
PRIORITY APPLN. INFO.:                     CN 2006-10105269       20061226

ED   Entered STN:  17 Jul 2007
AB    The method comprises: (1) ultrasonically vibrating carbon nanotubes in 0.01-
      0.6 mol/L surfactant solution for 5-120 min to obtain 0.01-0.1% dispersion A,
      (2) adding 0.01-0.6 mol/L conductive polymer monomers and 0-0.3 mol/L
      supporting electrolyte to obtain solution B, and (3) electrochem. polymerizing
      at 0.1-10 mA/cm2, and controlling the thickness of conductive polymer- carbon
      nanotube composite film by adjusting the polymerization current and time.
      Thus, single wall nanotubes were ultrasonically vibrated in 0.6 M dodecyl
      benzene sulfonic acid to give a 0.01% dispersion A, added with pyrrole to form
      a 0.6 M solution, which was elec. polymerized under 10 mA/cm2 to give a
      composite film.
IT   25155-30-0, Sodium dodecyl benzene sulfonate
        (preparation of conductive polymer-carbon nanotube
        composite electrode material)
RN   25155-30-0  HCAPLUS
CN   Benzenesulfonic acid, dodecyl-, sodium salt (1:1)  (CA INDEX NAME)
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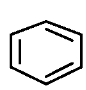

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   D1— SO3H

 Me— (CH2)11— D1
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CC   38-3 (Plastics Fabrication and Uses)
     Section cross-reference(s): 72, 76
ST   conductive pyrrole polymer carbon nanotube
     electrode
IT   Nanotubes
```

(carbon; preparation of conductive polymer-carbon
nanotube composite electrode material)

IT Conducting polymers
Films
(preparation of conductive polymer-carbon nanotube
composite electrode material)

IT Nitrates, miscellaneous
Perchlorates
(preparation of conductive polymer-carbon nanotube
composite electrode material)

IT 25233-30-1P, Polyaniline 25233-34-5P, Polythiophene 30604-81-0P,
Pyrrole homopolymer 479355-50-5P, Methyl pyrrole homopolymer
(preparation of conductive polymer-carbon nanotube
composite electrode material)

IT 56-34-8, Tetraethyl ammonium chloride 75-75-2, Methyl sulfonic acid
1643-19-2, Tetrabutyl ammonium bromide 1923-70-2, Tetrabutyl
ammonium perchlorate 2386-56-3, Potassium methyl sulfonate
2567-83-1, Tetraethyl ammonium perchlorate 25155-30-0,
Sodium dodecyl benzene sulfonate 27176-87-0
(preparation of conductive polymer-carbon nanotube
composite electrode material)

IT 126213-51-2P, 3,4-Ethylenedioxythiophene homopolymer
(preparation of conductive polymer-carbon nanotube
composite electrode material)

L28 ANSWER 21 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:758723 HCAPLUS Full-text
DOCUMENT NUMBER: 147:145677
TITLE: Carbon nanoparticle-containing hydrophilic nanofluid
INVENTOR(S): Hong, Haiping; Marquis, Fernand D. S.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 11pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20070158610	A1	20070712	US 2006-332682	20060112
PRIORITY APPLN. INFO.:			US 2006-332682	20060112

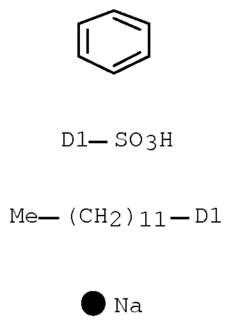
ED Entered STN: 12 Jul 2007

AB The process for preparing a stable suspension of carbon nanoparticles in a hydrophilic thermal transfer fluid to enhance thermal conductive properties and other characteristics such as f.p. of an antifreeze coolant involves dispersing carbon nanoparticles directly into a mixture of a thermal transfer fluid and other additives in the presence of surfactants with intermittent ultrasonication. The present invention also relates to the composition of a hydrophilic nanofluid, which comprises carbon nanoparticles, particularly carbon nanotubes, a hydrophilic thermal transfer fluid, and at least one surfactant. Addition of surfactants significantly increases the stability of nanoparticle dispersion.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(carbon nanoparticle-containing hydrophilic nanofluid as
coolant)

RN 25155-30-0 HCAPLUS

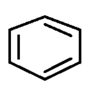
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



INCL -252
CC   48-5 (Unit Operations and Processes)
ST   carbon nanoparticle hydrophilic nanofluid cooling water
IT   Antifreeze
       (Prestone Antifreeze/Coolant; carbon nanoparticle-containing
       hydrophilic nanofluid as coolant)
IT   Alcohols, uses
       (aliphatic; carbon nanoparticle-containing hydrophilic nanofluid
       as coolant)
IT   Surfactants
       (anionic; carbon nanoparticle-containing hydrophilic
       nanofluid as coolant)
IT   Coolants
     Cooling water
     Nanoparticles
       Surfactants
       (carbon nanoparticle-containing hydrophilic nanofluid as
       coolant)
IT   Glycols, uses
       (carbon nanoparticle-containing hydrophilic nanofluid as
       coolant)
IT   Nanotubes
       (carbon; carbon nanoparticle-containing hydrophilic
       nanofluid as coolant)
IT   Fullerenes
       (nanoparticles; carbon nanoparticle-containing hydrophilic
       nanofluid as coolant)
IT   Sonication
       (ultrasonication; carbon nanoparticle-containing hydrophilic
       nanofluid as coolant)
IT   2373-23-1, Dioctyl sulfosuccinate   18271-58-4 25155-30-0,
     Sodium dodecylbenzenesulfonate   162215-93-2
       (carbon nanoparticle-containing hydrophilic nanofluid as
       coolant)
IT   67-64-1, Acetone, reactions   68-11-1, Thioglycolic acid, reactions
     107-96-0, 3-Mercaptopropionic acid   7647-01-0, Hydrogen chloride,
     reactions   7664-93-9, Sulfuric acid, reactions   7697-37-2, Nitric
     acid, reactions
       (carbon nanoparticle-containing hydrophilic nanofluid as
       coolant)
IT   107-21-1, Ethylene glycol, uses   111-46-6, Diethylene glycol, uses
       (carbon nanoparticle-containing hydrophilic nanofluid as

coolant)
IT 7782-40-3, Diamond, uses 7782-42-5, Graphite, uses
(nanoparticles; carbon nanoparticle-containing hydrophilic
nanofluid as coolant)

L28 ANSWER 22 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:576693 HCAPLUS Full-text
DOCUMENT NUMBER: 148:18365
TITLE: Study of dispersion property of carbon nanotubes in water
AUTHOR(S): Pang, Zhen-li; Jiang, Wu-feng; Hao, Su-ju; Li, Chao-wang
CORPORATE SOURCE: College of Metallurgy and Energy, Hebei Polytechnic University, Tangshan Hebei, 063009, Peop. Rep. China
SOURCE: Hebei Ligong Xueyuan Xuebao (2007), 29(1), 97-101
CODEN: HLXUFU; ISSN: 1007-2829
PUBLISHER: Hebei Ligong Xueyuan Xuebao Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
ED Entered STN: 29 May 2007
AB With the supersonic as a supplementary tool, the effects of cationic and anionic surfactants on the dispersion of C nanotubes were studied in the solvent of H2O. The preserved time of dispersed C nanotubes solution was determined The dispersion of C nanotubes was observed by SEM and TEM. The C nanotubes were dispersed very well in the cationic surfactant hexadecyl tri-Me NH4Br (HTAB) and emulsion OP.
IT 25155-30-0, Sodium dodecyl benzene sulfonate
(study of dispersion property of carbon
nanotubes in water)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO_3H

Me— $(CH_2)_{11}$ —D1

● Na

CC 66-1 (Surface Chemistry and Colloids)
ST carbon nanotube dispersion
surfactant
IT Surfactants
(anionic; study of dispersion property of carbon
nanotubes in water)
IT Nanotubes
(carbon; study of dispersion property of
carbon nanotubes in water)
IT Surfactants

(cationic; study of dispersion property of carbon nanotubes in water)

IT Dispersion (of materials)
Stability
(study of dispersion property of carbon nanotubes in water)

IT 57-09-0, Hexadecyl trimethyl ammonium bromide 151-21-3, Sodium dodecyl sulfate, uses 7732-18-5, Water, uses 9036-19-5, OP 25155-30-0, Sodium dodecyl benzene sulfonate
(study of dispersion property of carbon nanotubes in water)

L28 ANSWER 23 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:508960 HCAPLUS Full-text
DOCUMENT NUMBER: 147:36728
TITLE: Method for coating carbon nanotubes with hydroxyapatite
INVENTOR(S): Sun, Kangning; Lu, Zhihua; Liu, Aihong
PATENT ASSIGNEE(S): Shandong University, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1958517	A	20070509	CN 2006-10069172	20061017
PRIORITY APPLN. INFO.:			CN 2006-10069172	20061017

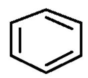
ED Entered STN: 10 May 2007

AB The title method comprises: (1) adding carbon nanotubes into strongly oxidative acid, refluxing at 100-140°C for 1-6 h, washing to neutrality with distilled water, drying, grinding, and sieving through 300 mesh to obtain powder, (2) ultrasonically dispersing into distilled water (dispersion medium) with anionic surfactant as dispersant for 0.5-3 h to obtain 0.2-1 g/L suspension , (3) preparing 0.4-3 mol/L $Ca(NO_3)_2$ solution and 0.24-1.8 mol/L $(NH_4)_2HPO_4$ solution, (4) slowly adding $Ca(NO_3)_2$ solution into the suspension, adjusting pH to 10-13 with ammonia water, ultrasonically dispersing for 0.5-1 h, and introducing into a reaction container, and (5) slowly adding $(NH_4)_2HPO_4$ solution into the reaction container with a separatory funnel, aging at 10-80°C for 1-5 d, washing the precipitate with distilled water, and drying at 80°C to obtain carbon nanotubes coated with hydroxyapatite. The mol. ratio of $(NH_4)_2HPO_4$ to $Ca(NO_3)_2$ is 3:5. This method is easy to operate and can realize compact bonding of nanotubes and hydroxyapatite.

IT 25155-30-0, Sodium dodecyl benzenesulfonate
(method for coating carbon nanotubes with hydroxyapatite)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO_3H

Me— $(CH_2)_{11}$ —D1

● Na

CC   57-8 (Ceramics)
ST   coating carbon nanotube hydroxyapatite
IT   Nanotubes
        (carbon; method for coating carbon
        nanotubes with hydroxyapatite)
IT   Aging, materials
     Coating materials
     Coating process
        (method for coating carbon nanotubes with
        hydroxyapatite)
IT   57-09-0, Cetyl trimethyl ammonium bromide   77-92-9, Citric acid,
     processes   2386-53-0, Sodium dodecyl sulfonate   7664-41-7, Ammonia,
     processes   7664-93-9, Sulfuric acid, processes   7697-37-2, Nitric
     acid, processes   7783-28-0, Diammonium hydrogen phosphate
     9003-01-4, Polyacrylic acid   10124-37-5, Calcium nitrate
     25155-30-0, Sodium dodecyl benzenesulfonate
        (method for coating carbon nanotubes with
        hydroxyapatite)
IT   1306-06-5, Hydroxyapatite   7440-44-0, Carbon, properties
        (method for coating carbon nanotubes with
        hydroxyapatite)

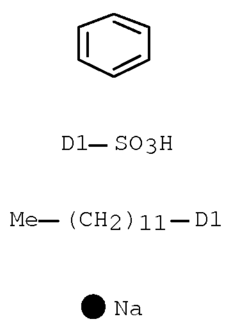
L28 ANSWER 24 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:501312 HCAPLUS Full-text
DOCUMENT NUMBER: 147:143650
TITLE: Peptides that non-covalently functionalize single-walled carbon nanotubes to give controlled solubility characteristics
AUTHOR(S):   Witus, Leah S.; Rocha, John-David R.; Yuwono, Virany M.; Paramonov, Sergey E.; Weisman, R. Bruce; Hartgerink, Jeffrey D.
CORPORATE SOURCE: Department of Chemistry, Houston, TX, 77005, USA
SOURCE: Journal of Materials Chemistry (2007), 17(19), 1909-1915
                         CODEN: JMACEP; ISSN: 0959-9428
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
ED   Entered STN: 09 May 2007
AB   Methods which solubilize single-walled carbon nanotubes (SWNTs) in water as individuals, not bundles, while retaining their unique electronic, photonic and mech. properties are highly desirable. Furthermore, functionalization with a diverse array of selectable chemical moieties would allow the range of useful applications to be significantly extended and may permit the designed

assembly of SWNT networks. This paper presents a series of peptides that non-covalently solubilize carbon nanotubes in water using a design motif that combines a combinatorial library sequence to bind to nanotubes with a rationally designed section to create environmentally tuned solubility characteristics. The ability of the peptides to individually disperse carbon nanotubes without altering their electronic structure is shown by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM. Identification of the species composition of each sample by NIR fluorescence reveals that the peptides exhibit some diameter selectivity. Addnl., one of the rationally designed modifications addresses the poor stability of non-covalently solubilized SWNT suspensions by including cysteine residues for covalent crosslinking between adjacent peptides.

IT 25155-30-0, SDBS
(ability of peptides to disperse carbon nanotubes retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 34-3 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 22, 46, 65, 66

ST single walled carbon nanotube peptide non covalently solubilization soly; dispersion peptide SWNT fluorescence absorption cryo TEM suspension stability; peptide coupling crosslinking cysteine oxidn surfactant SWNT dialysis

IT Peptide coupling
(ability of peptides prepared by solution coupling to disperse SWNTs retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

IT Electronic properties
Mechanical properties
Photon
(ability of peptides to disperse SWNTs retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

IT Atomic force microscopy
Dialysis
Disperse systems
Stability

Surfactants
Suspensions
(ability of peptides to disperse SWNTs with modifications to coat nanotubes in different environments and increase stability of suspension)

IT Electronic structure
Fluorescence
(ability of peptides to disperse carbon nanotubes retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

IT Peptides, preparation
(ability of peptides to disperse carbon nanotubes retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

IT Solubilization
(ability of peptides to non-covalently solubilize SWNTs retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

IT Solubility
(ability of peptides to non-covalently solubilize SWNTs to create environmentally tuned solubility characteristics)

IT Suspensions
(aquatic; ability of peptides to disperse SWNTs with modifications to coat nanotubes in different environments and increase stability of suspension)

IT Nanotubes
(carbon; ability of peptides to disperse SWNTs retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

IT Absorption
(vis-NIR; ability of peptides to disperse SWNTs retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

IT Transmission electron microscopy
(vitreous ice cryo; ability of peptides to non-covalently solubilize SWNTs retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

IT 25155-30-0, SDBS
(ability of peptides to disperse carbon nanotubes retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

IT 943454-16-8P
(ability of peptides to disperse carbon nanotubes retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

IT 943454-14-6P 943454-15-7P 943454-16-8DP, oxidized
(ability of peptides to disperse carbon nanotubes retaining their electronic, photonic and mech. properties studied by vis-NIR absorbance, fluorescence, and regular and vitreous ice cryo-TEM)

IT 7440-44-0, Carbon, properties
(nanotubes; ability of peptides to disperse

SWNTs retaining their electronic, photonic and mech.
properties studied by vis-NIR absorbance, fluorescence, and regular
and vitreous ice cryo-TEM)

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 25 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:395779 HCAPLUS Full-text

DOCUMENT NUMBER: 147:81675

TITLE: Quantitative assessment of carbon nanotube dispersions by Raman spectroscopy

AUTHOR(S): Salzmann, Christoph G.; Chu, Bryan T. T.; Tobias, Gerard; Llewellyn, Simon A.; Green, Malcolm L. H.

CORPORATE SOURCE: Inorganic Chemistry Laboratory, University of Oxford, Oxford, OX1 3QR, UK

SOURCE: Carbon (2007), 45(5), 907-912
CODEN: CRBNAH; ISSN: 0008-6223

PUBLISHER: Elsevier Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

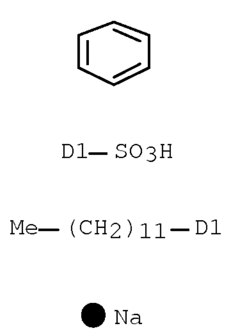
ED Entered STN: 10 Apr 2007

AB Aqueous dispersions of single wall C nanotubes (C- SWNTs), prepared using different dispersing agents, were analyzed by Raman spectroscopy. Normalizing the spectra with respect to the area of the water O-H stretching transition eliminates the effects of photon scattering and absorption on the way through the dispersion, and the dispersions can be assessed quant. by comparison of the areas of the C nanotube G-band. The normalized G-band areas show linear concentration dependence according to Beer's law. The influences of different dispersing agents and excitation wavelengths are discussed and the results are compared to the commonly used UV-Visible spectroscopic anal. The method presented here is semi-quant. and it probably uses the most effective dispersing agent found Na dodecylbenzene sulfonate (SDBS), as a benchmark for future dispersion expts.

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(quant. assessment of carbon nanotube dispersions by Raman spectroscopy)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 73-3 (Optical, Electron, and Mass Spectroscopy and Other Related

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     Properties)
ST   quant assessment carbon nanotube
     dispersion Raman spectroscopy
IT   Nanotubes
        (carbon; quant. assessment of carbon
        nanotube dispersions by Raman spectroscopy)
IT   Disperse systems
     Raman spectra
       Surfactants
        (quant. assessment of carbon nanotube
        dispersions by Raman spectroscopy)
IT   DNA
        (salmon; quant. assessment of carbon nanotube
        dispersions by Raman spectroscopy)
IT   7440-44-0, Carbon, properties
        (nanotubes; quant. assessment of carbon
        nanotube dispersions by Raman spectroscopy)
IT   151-21-3, Sodium dodecylsulfate, properties   1314-23-4, Zirconium
     dioxide, properties 25155-30-0, Sodium
     dodecylbenzene sulfonate
        (quant. assessment of carbon nanotube
        dispersions by Raman spectroscopy)
REFERENCE COUNT:         38    THERE ARE 38 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

L28  ANSWER 26 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2007:324590  HCAPLUS  Full-text
DOCUMENT NUMBER:         148:122270
TITLE:                   Effects of different dispersing agents
                         on polymer-carbon nanotube
                         composites
AUTHOR(S):               Camponeschi, Erin; Garmestani, Hamid; Tannenbaum,
                         Rina
CORPORATE SOURCE:        School of Materials Science and Engineering,
                         Georgia Institute of Technology, Atlanta, GA,
                         30332, USA
SOURCE:                  PMSE Preprints (2007), 96, 284-285
                         CODEN: PPMRA9; ISSN: 1550-6703
PUBLISHER:               American Chemical Society
DOCUMENT TYPE:           Journal; (computer optical disk)
LANGUAGE:                English
ED   Entered STN:  22 Mar 2007
AB    Three different surface-active agents were used to create carbon
      nanotube/polymer matrix composites to determine the effect the dispersing
      agents had on the mech. properties of the composite.
IT   25155-30-0, Sodium dodecyl benzenesulfonate
        (effects of different dispersing agents on polymer-
        carbon nanotube composites)
RN   25155-30-0  HCAPLUS
CN   Benzenesulfonic acid, dodecyl-, sodium salt (1:1)  (CA INDEX NAME)
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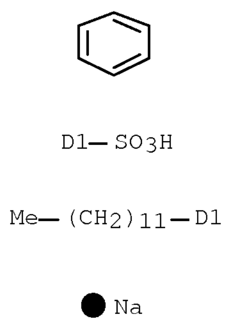


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CC    36-6 (Physical Properties of Synthetic High Polymers)
      Section cross-reference(s): 38
ST    single walled carbon nanotube epoxy resin
      dispersing agent effect
IT    Surfactants
         (anionic; effects of different dispersing agents on
         polymer-carbon nanotube composites)
IT    Nanotubes
         (carbon; effects of different dispersing agents
         on polymer-carbon nanotube composites)
IT    Composites
        Dispersing agents
      Polymer morphology
      Transmission electron microscopy
         (effects of different dispersing agents on polymer-
         carbon nanotube composites)
IT    Epoxy resins, properties
         (effects of different dispersing agents on polymer-
         carbon nanotube composites)
IT    25155-30-0, Sodium dodecyl benzenesulfonate   623947-25-1,
      Disperbyk 2150   691397-13-4, Pluronic F108
         (effects of different dispersing agents on polymer-
         carbon nanotube composites)
IT    64-17-5, Ethanol, uses
         (effects of different dispersing agents on polymer-
         carbon nanotube composites)
IT    38830-06-7, EPON Resin 826-diethanol amine copolymer
         (effects of different dispersing agents on polymer-
         carbon nanotube composites)
REFERENCE COUNT:          30    THERE ARE 30 CITED REFERENCES AVAILABLE FOR
                                THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                                RE FORMAT

L28  ANSWER 27 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2007:232659  HCAPLUS  Full-text
DOCUMENT NUMBER:          147:503263
TITLE:                    Electrically conductive polymeric membranes by
                          incorporation of carbon
                          nanotubes
AUTHOR(S):                Yoon, Seok Ho; Kang, Minsung; Park, Won-Il; Jin,
                          Hyoung-Joon
CORPORATE SOURCE:         Department of Polymer Science and Engineering,
                          Inha University, Incheon, S. Korea
SOURCE:                   Molecular Crystals and Liquid Crystals (2007),
```

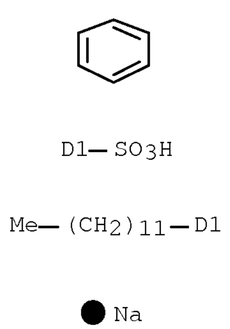
464, 685-690
CODEN: MCLCD8; ISSN: 1542-1406
PUBLISHER: Taylor & Francis, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 Mar 2007

AB Elec. conductive polymeric membranes were prepared by incorporation of multiwalled carbon nanotubes (MWNTs) onto microbial cellulose membranes cultured by Acetobacter xylinum. To minimize the damage to the inherent properties of the individual MWNTs induced by the chemical modification, a surfactant is used for the purpose of dispersing MWNTs in water. Sodium dodecylbenzenesulfonate was selected for the process of dispersing MWNTs in water. Using SEM and transmission electron microscopy, the individual MWNTs were found to strongly adhere to the surface and the inside of the cellulose membrane. The elec. conductivity of the cellulose membranes containing well-dispersed MWNTs was also investigated.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(surfactant; in preparation of elec. conductive polymeric membrane by incorporation of multiwalled carbon nanotubes in microbial cellulose membranes cultured by Acetobacter xylinum)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 16, 43

ST elec cond microbial cellulose membrane contg carbon nanotube

IT Nanotubes
(carbon, multiwalled; preparation of elec. conductive polymeric membranes by incorporation of multiwalled carbon nanotubes in microbial cellulose membranes cultured by Acetobacter xylinum)

IT Membrane, biological
(microbial cellulose; preparation of elec. conductive polymeric membranes by incorporation of multiwalled carbon nanotubes in microbial cellulose membranes cultured by Acetobacter xylinum)

IT Electric conductivity
(of elec. conductive polymeric membranes prepared by incorporation of multiwalled carbon nanotubes in microbial cellulose membranes cultured by Acetobacter xylinum)

IT Adsorption

(of multiwalled carbon nanotubes; preparation of
elec. conductive polymeric membrane by incorporation of multiwalled
carbon nanotubes in microbial cellulose membranes
cultured by Acetobacter xylinum)

IT Gluconacetobacter xylinus xylinus
(preparation of elec. conductive polymeric membranes by incorporation of
multiwalled carbon nanotubes in microbial
cellulose membranes cultured by Acetobacter xylinum)

IT 9004-34-6, Cellulose, uses
(membranes; preparation of elec. conductive polymeric membranes by
incorporation of multiwalled carbon nanotubes
in microbial cellulose membranes cultured by Acetobacter xylinum)

IT 7440-44-0, Carbon, uses
(nanotubes, multiwalled; preparation of elec. conductive
polymeric membranes by incorporation of multiwalled carbon
nanotubes in microbial cellulose membranes cultured by
Acetobacter xylinum)

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(surfactant; in preparation of elec. conductive polymeric
membrane by incorporation of multiwalled carbon
nanotubes in microbial cellulose membranes cultured by
Acetobacter xylinum)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 28 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1314988 HCAPLUS Full-text
DOCUMENT NUMBER: 147:154921
TITLE: Electron-phonon coupling in single-walled carbon nanotubes
AUTHOR(S): Oron-Carl, Matti
CORPORATE SOURCE: Institut fuer Nanotechnologie von der Fakultaet fuer Chemie und Biowissenschaften, Universitaet Karlsruhe, Germany
SOURCE: Wissenschaftliche Berichte - Forschungszentrum Karlsruhe (2006), FZKA 7255, i-vii, 1-152
CODEN: WBFKF5; ISSN: 0947-8620
DOCUMENT TYPE: Report
LANGUAGE: English

ED Entered STN: 15 Dec 2006

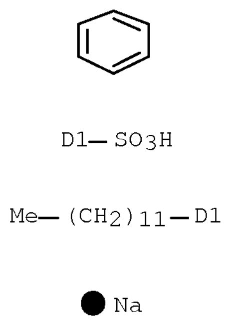
AB The present work investigates the strong electron-phonon coupling processes occurring on the level of individual metallic single-walled carbon nanotubes (SWNTs). In contrast to previous theory, we show that the phonon coupling to the electronic system in individual metallic SWNTs is not due to coupling to low-energy plasmons. This is based on evidence from the measured Raman-Stokes G-mode, which for metallic and semiconducting tubes could be fitted well by the superposition of only two Lorentzian lines associated with vibrational modes along the nanotube axis and the nanotube circumference. In the case of metallic tubes, the lower-energy G-mode is significantly broadened while maintaining the Lorentzian line shape, opposed to the theor. expected asym. Breit-Wigner-Fano line shape from phonon-plasmon coupling. Based on the anal. of the Raman G modes' line shape, an alternative electron-phonon coupling mechanism was proposed. The proposed mechanism is based on results obtained by studying 25 individual metallic and semiconducting SWNTs with atomic force microscopy, electron transport measurements, and resonant Raman spectroscopy. To test the suggested electron-phonon coupling mechanism, a complementary study was performed in which the Raman spectra of metallic SWNTs were investigated under bias. Preliminary results show an increase in the high-

energy phonons occupation, i.e., an increase in the intensity of the anti-
Stokes G peak.

IT 25155-30-0, SDBS
(micelles; electron-phonon coupling in single-walled carbon
nanotubes)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 76-3 (Electric Phenomena)
Section cross-reference(s): 73

ST single walled carbon nanotube electron phonon
coupling

IT Phonon
(dispersion; electron-phonon coupling in single-walled
carbon nanotubes)

IT Band gap
Band structure
Bias potential
Contact resistance
Density of states
Dielectrophoresis
Drying
Electric conductors
Electric current-potential relationship
Electric field
Electric field effects
Electric resistance
Electroluminescence
Electron-phonon interaction
Field effect transistors
Lattice dynamics
Micelles
Nanotubes
Polarizability
Raman spectra
Semiconductor materials
Supercritical fluids
Surfactants
UV and visible spectra
(electron-phonon coupling in single-walled carbon
nanotubes)

IT Sputtering
(etching, reactive; electron-phonon coupling in single-walled

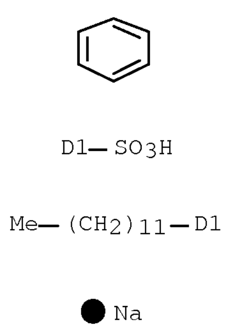
carbon nanotubes)
IT Phonon
(hot; electron-phonon coupling in single-walled carbon nanotubes)
IT Hysteresis
(in current-voltage characteristics; electron-phonon coupling in single-walled carbon nanotubes)
IT Vapor deposition process
(laser ablation; electron-phonon coupling in single-walled carbon nanotubes)
IT IR spectra
(near-IR; electron-phonon coupling in single-walled carbon nanotubes)
IT Electric current carriers
(scattering; electron-phonon coupling in single-walled carbon nanotubes)
IT Etching
(sputter, reactive; electron-phonon coupling in single-walled carbon nanotubes)
IT 7440-32-6, Titanium, processes
(adhesion layer; electron-phonon coupling in single-walled carbon nanotubes)
IT 7440-05-3, Palladium, uses 7440-57-5, Gold, uses
(electrode; electron-phonon coupling in single-walled carbon nanotubes)
IT 7440-44-0, Carbon, properties
(electron-phonon coupling in single-walled carbon nanotubes)
IT 75-46-7, Trifluoromethane 2551-62-4, Sulfur hexafluoride 7782-44-7, Oxygen, processes
(etchant; critical-point drying of carbon nanotubes)
IT 25155-30-0, SDBS
(micelles; electron-phonon coupling in single-walled carbon nanotubes)
IT 7440-21-3, Silicon, processes 7631-86-9, Silica, processes
(substrate; electron-phonon coupling in single-walled carbon nanotubes)
IT 124-38-9, Carbon dioxide, properties
(supercrit.; critical-point drying of carbon nanotubes)
IT 361-09-1, Sodium cholate
(surfactant; electron-phonon coupling in single-walled carbon nanotubes)
REFERENCE COUNT: 116 THERE ARE 116 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 29 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:1308455 HCAPLUS Full-text
DOCUMENT NUMBER: 146:47185
TITLE: Method for separating semiconducting and metallic carbon nanotubes
INVENTOR(S): Choi, Jae Young; Yoon, Seon Mi; Ryu, Young Gyoon; Lee, Eun Sun; Song, Ki Yong
PATENT ASSIGNEE(S): Samsung Electronics Co., Ltd., S. Korea
SOURCE: U.S. Pat. Appl. Publ., 9pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 20060278579	A1	20061214	US 2006-396690		20060404
KR 2006127584	A	20061213	KR 2005-48766		20050608
KR 2007044412	A	20070427	KR 2007-29819		20070327
PRIORITY APPLN. INFO.:			KR 2005-48766	A	20050608

ED Entered STN: 14 Dec 2006
AB A method for separating semiconducting and metallic carbon nanotubes by selectively plating metallic carbon nanotubes via electroless plating to precipitate the plated metallic carbon nanotubes and filtering the precipitated metallic carbon nanotubes. According to an example method, metallic and semiconducting carbon nanotubes may be effectively separated from each other in a simple manner and/or at a low cost.
IT 25155-30-0, Sodium dodecylbenzenesulfonate
(separating semiconducting and metallic carbon nanotubes)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



INCL 210634000
CC 48-1 (Unit Operations and Processes)
Section cross-reference(s): 49
ST sepn semiconducting metallic carbon nanotube
IT Surfactants
(anionic; separating semiconducting and metallic carbon nanotubes)
IT Nanotubes
(carbon; separating semiconducting and metallic carbon nanotubes)
IT Surfactants
(cationic; separating semiconducting and metallic carbon nanotubes)
IT Coating process
(electroless; separating semiconducting and metallic carbon nanotubes)
IT Surfactants
(nonionic; separating semiconducting and metallic carbon nanotubes)
IT Surfactants

(polymeric; separating semiconducting and metallic carbon nanotubes)

IT Nanotubes
(semiconducting; separating semiconducting and metallic carbon nanotubes)

IT Centrifugation
Complexing agents
Dispersing agents
Filtration
Magnetic separation
Reducing agents
Sedimentation (separation)
(separating semiconducting and metallic carbon nanotubes)

IT 151-21-3, Sodium dodecyl sulfate, uses 1119-94-4, Dodecyltrimethylammonium bromide 9000-01-5, Gum arabic 9002-93-1, Triton X-100 9003-39-8, Polyvinylpyrrolidone 9005-25-8, Starch, uses 25155-30-0, Sodium dodecylbenzenesulfonate
(separating semiconducting and metallic carbon nanotubes)

IT 68-04-2, Sodium citrate 107-21-1, Ethylene glycol, reactions 127-09-3, Sodium acetate 302-01-2, Hydrazine, reactions 373-02-4, Nickel acetate 1336-21-6, Ammonium hydroxide 3333-67-3, Nickel carbonate 7440-02-0, Nickel, reactions 7440-05-3, Palladium, reactions 7440-57-5, Gold, reactions 7558-80-7, Monosodium phosphate 7664-41-7, Ammonia, reactions 7681-53-0, Sodium hypophosphite 7718-54-9, Nickel chloride, reactions 7786-81-4, Nickel sulfate 12054-48-7, Nickel hydroxide 13770-89-3 16940-66-2, Sodium borohydride 55136-38-4, Nickel methanesulfonate
(separating semiconducting and metallic carbon nanotubes)

L28 ANSWER 30 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:854646 HCAPLUS Full-text
DOCUMENT NUMBER: 146:380806
TITLE: Multiwalled carbon nanotubes -coated polymeric microspheres
AUTHOR(S): Yoon, Seok Ho; Kang, Minsung; Jin, Hyoung-Joon
CORPORATE SOURCE: Department of Polymer Science and Engineering, Inha University, Incheon, 402-751, S. Korea
SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2006), 47(2), 899-900
CODEN: ACPPAY; ISSN: 0032-3934
PUBLISHER: American Chemical Society, Division of Polymer Chemistry
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English

ED Entered STN: 25 Aug 2006

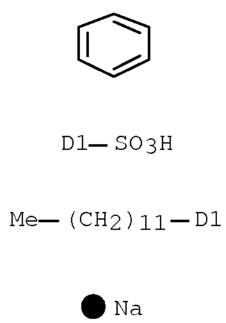
AB Surface-conductive microspheres consisting of poly(Me methacrylate) (PMMA) core (6.5 μm) and CNTs-adsorbed shell were prepared by blending of 2 colloidal solns.: an aqueous CNT dispersion with surfactants and an aqueous PMMA microsphere colloid. The amount of adsorbed CNT in dependence of surfactant used (cetyltriethylammonium bromide, sodium dodecyl sulfate, sodium dodecylbenzene sulfonate, and Triton X-100) was determined The CNTs-PMMA composite suspensions in silicone oil showed typical electro-rheol. characteristics of forming a chain-like structure under an applied elec. field (1.4 kV/mm). The composite microspheres exhibited a conductivity ranging from 6.3 x 10-5 to 5.2 x 10-4 S/cm. This phenomenon can be explained by the

interfacial polarizability of nanotubes adsorbed on the surface of the polymeric microspheres.

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(preparation and properties of surface-conductive microspheres consisting of PMMA core and carbon nanotube shell)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 37-6 (Plastics Manufacture and Processing)

ST carbon nanotube shell polymethyl methacrylate core electrorheol surface cond

IT Nanotubes
(carbon; preparation and properties of surface-conductive microspheres consisting of PMMA core and carbon nanotube shell)

IT Adsorbed substances
Microparticles
Nanocomposites
Surface conductivity
Surfactants
(preparation and properties of surface-conductive microspheres consisting of PMMA core and carbon nanotube shell)

IT 7440-44-0, Carbon, uses
(nanotubes; preparation and properties of surface-conductive microspheres consisting of PMMA core and carbon nanotube shell)

IT 151-21-3, Sodium dodecyl sulfate, uses 9002-93-1, Triton X-100 13316-70-6, Cetyltriethylammonium bromide 25155-30-0, Sodium dodecylbenzene sulfonate
(preparation and properties of surface-conductive microspheres consisting of PMMA core and carbon nanotube shell)

IT 9011-14-7, PMMA
(preparation and properties of surface-conductive microspheres consisting of PMMA core and carbon nanotube shell)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L28  ANSWER 31 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2006:723921  HCAPLUS  Full-text
DOCUMENT NUMBER:         146:129275
TITLE:                   Dispersion of carbon
                         nanotubes
AUTHOR(S):               Gong, Xiaozhong; Tang, Jiaoning; Gu, Kunming;
                         Yang, Qinpeng
CORPORATE SOURCE:        School of Science, Shenzhen University, Shenzhen,
                         518060, Peop. Rep. China
SOURCE:                  Guangdong Huagong (2005), 32(4), 7-9, 18
                         CODEN: GHUAFI; ISSN: 1007-1865
PUBLISHER:               Guangdongsheng Zhonghua Gongyeting Xinxi Zhongxin
DOCUMENT TYPE:           Journal
LANGUAGE:                Chinese
ED   Entered STN:  26 Jul 2006
AB   C nanotubes were dispersed in traditional organic solvents with various
     surfactants or surfactant mixts. by ultrasonic agitation.  The dispersity of
     the C nanotubes was evaluated by the settling time.  Laser particle size
     analyzer, SEM, and AFM were employed to confirm the dispersion results.  The
     results showed that the C nanotubes were well dispersed with mixture of
     nonionic surfactant and anionic surfactant having appropriate concns.  For
     mixts. of 0.05 g/L Na dodecylbenzene sulfonate and 2.5%, 3.0% OP, the C
     nanotubes suspension solution can be kept for 5.5 and 4 d, resp.
IT   25155-30-0, Sodium dodecylbenzene
     sulfonate
        (dispersion of carbon nanotubes)
RN   25155-30-0  HCAPLUS
CN   Benzenesulfonic acid, dodecyl-, sodium salt (1:1)  (CA INDEX NAME)
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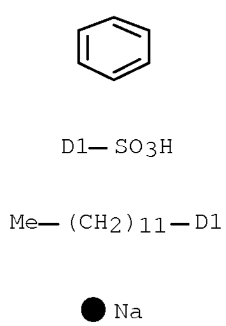


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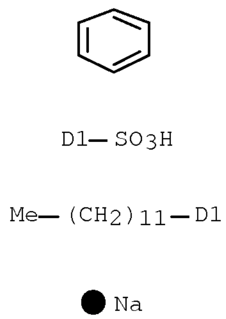
CC   66-4 (Surface Chemistry and Colloids)
     Section cross-reference(s): 65
ST   carbon nanotube dispersion
     surfactant mixt
IT   Surfactants
        (anionic; dispersion of carbon
        nanotubes)
IT   Nanotubes
        (carbon; dispersion of carbon
        nanotubes)
IT   Agitation (mechanical)
     Particle size distribution
     Sound and Ultrasound
       Surfactants
```

```
        (dispersion of carbon nanotubes)
IT   Surfactants
        (nonionic; dispersion of carbon
        nanotubes)
IT   Solvents
        (organic; dispersion of carbon nanotubes
        )
IT   9036-19-5
        (OP; dispersion of carbon nanotubes)
IT   57-09-0, Cetyltrimethylammonium bromide   151-21-3, Sodium dodecyl
     sulfate, processes   1652-63-7, FC-134   7440-44-0, Carbon,
     processes 25155-30-0, Sodium
     dodecylbenzene sulfonate
        (dispersion of carbon nanotubes)

L28  ANSWER 32 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2006:590521  HCAPLUS  Full-text
DOCUMENT NUMBER:         145:176100
TITLE:                   Ni-P-W-α-Al2O3 composite plating formulation
                         and method thereof
INVENTOR(S):             Liu, Zheng; Fan, Feng
PATENT ASSIGNEE(S):      Guilin University of Technology, Peop. Rep. China
SOURCE:                  Faming Zhuanli Shenqing Gongkai Shuomingshu, 6 pp.
                         CODEN: CNXXEV
DOCUMENT TYPE:           Patent
LANGUAGE:                Chinese
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:
```

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1786293	A	20060614	CN 2005-10118397	20051101
PRIORITY APPLN. INFO.:			CN 2005-10118397	20051101

```
ED   Entered STN:  20 Jun 2006
AB    The title formulation includes: NiSO4·6H2O 235-245 g/L, NiCl2·6H2O 35-45 g/L,
      NaH2PO2·H2O 10-20 g/L, Na2WO4·2H2O, 3-9 g/L, H3BO3 25-35 g/L, micrometer-scale
      or nano-scale Al2O3 45-55g/L, and saccharin in small amount  The title method
      includes grinding micrometer-scale Al2O3 and 0.08-0.12 g/L surfactant sodium
      dodecyl benzene sulfonate, transferring to electroplating solution, and fast
      stirring to suspend Al2O3 in the solution, or directly adding nano-Al2O3 to
      electroplating solution and supersonic dispersing; adding the rest of the
      components in specific ways to obtain the plating solution; and carrying out
      plating at 55-65°C with c.d. of 1.5-2.5 A/cm2 for 1-1.5h to obtain the
      composite coating with high hardness, high wear-resistance, and high-
      temperature antioxidn. property.
IT   25155-30-0, Sodium dodecylbenzenesulfonate
        (Ni-P-W-α-Al2O3 composite plating formulation and method
        thereof)
RN   25155-30-0  HCAPLUS
CN   Benzenesulfonic acid, dodecyl-, sodium salt (1:1)  (CA INDEX NAME)
```



CC 72-4 (Electrochemistry)
Section cross-reference(s): 42, 56, 57
IT 81-07-2 497-19-8, Sodium carbonate, uses 1310-73-2, Sodium hydroxide, uses 1344-09-8, Sodium silicate 7647-01-0, Hydrochloric acid, uses 7664-93-9, Sulfuric acid, uses 7681-53-0, Sodium hypophosphite 7697-37-2, Nitric acid, uses 7791-20-0, Nickel chloride hexahydrate 10039-32-4 10043-35-3, Boric acid, uses 10101-97-0, Nickel sulfate hexahydrate 13472-45-2 25155-30-0 , Sodium dodecylbenzenesulfonate 153301-99-6, OP 10 (Chinese surfactant)
(Ni-P-W-α-Al2O3 composite plating formulation and method thereof)
IT 11121-90-7, Carbon steel, uses
(Ni-P-W-α-Al2O3 composite plating formulation and method thereof)

L28 ANSWER 33 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:515364 HCAPLUS Full-text
DOCUMENT NUMBER: 144:484137
TITLE: Process and applications of carbon nanotube dispersions for the preparation of microchannels and copolymers
INVENTOR(S): Yodh, Arjun G.; Islam, Mohammad F.; Johnson, Alan T.; Johnston, Danvers E.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 61 pp., Cont.-in-part of U.S. Ser. No. 526,941.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060115640	A1	20060601	US 2005-145627	20050606
WO 2004024428	A1	20040325	WO 2003-US16086	20030521

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,

BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,
SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG

US 20060099135	A1	20060511	US 2005-526941		20050908
PRIORITY APPLN. INFO.:			US 2002-409821P	P	20020910
			US 2002-419882P	P	20021018
			WO 2003-US16086	W	20030521
			US 2004-576940P	P	20040604
			US 2005-526941	A2	20050908

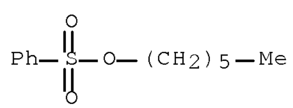
ED Entered STN: 01 Jun 2006

AB Disclosed are copolymers of carbon nanotubes, as well as processes and applications of carbon nanotube dispersions. Carbon nanotube emulsions and related technol. are also disclosed. The controlled deposition of carbon nanotubes on substrates is also provided. Methods of purifying single-walled carbon nanotubes are also provided. Devices made according to the disclosed methods are further described herein.

IT 781-07-7, Hexylbenzenesulfonate 25155-30-0
, Sodium dodecylbenzenesulfonate 28348-62-1
(process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)

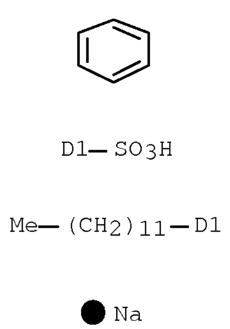
RN 781-07-7 HCAPLUS

CN Benzenesulfonic acid, hexyl ester (CA INDEX NAME)



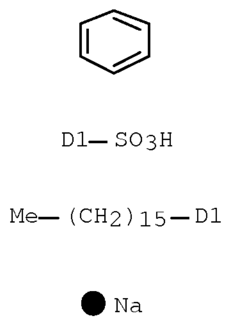
RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



RN 28348-62-1 HCAPLUS

CN Benzenesulfonic acid, hexadecyl-, sodium salt (1:1) (CA INDEX NAME)



INCL 428221000
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 38, 66
ST carbon nanotube dispersion surfactant microchannel copolymer
IT Nanotubes
(carbon, single-wall; process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)
IT Nanotubes
(carbon; process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)
IT Proteins
(conjugated to surfactant-functionalized carbon nanotube; process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)
IT Chromatography
(for the separation of carbon nanotubes; process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)
IT Biosensors
Sensors
(microfluidic; process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)
IT Emulsions
(of carbon nanotubes; process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)
IT Conducting polymers
Disperse systems
Electric charge
Gels
Hybrid organic-inorganic materials
Nanocomposites
Polymerization
Self-assembly
(process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)
IT Acrylic polymers, uses

(process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)

IT Nucleic acids
(process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)

IT 7440-44-0, Carbon, uses
(nanotubes; process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)

IT 7440-44-0DP, HiPCO, surfactant-functionalized, conjugated to protein via peptide bond
(nanotubes; process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)

IT 9011-14-7, PMMA
(process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)

IT 151-21-3, Sodium dodecyl sulfate, uses 781-07-7, Hexylbenzenesulfonate 1330-69-4, Dodecylbenzenesulfonate 9002-93-1 13149-99-0, Octylbenzenesulfonate 25155-30-0, Sodium dodecylbenzenesulfonate 28348-62-1 169211-42-1
(process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)

IT 24991-53-5DP, reaction products with carbon nanotubes 90398-43-9P
(process and applications of carbon nanotube dispersions for preparation of microchannels and copolymers)

L28 ANSWER 34 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:501183 HCAPLUS Full-text
DOCUMENT NUMBER: 145:34465
TITLE: On the use of dispersed nanoparticles modified with single layer β-cyclodextrin as chiral selector to enhance enantioseparation of clenbuterol with capillary electrophoresis
AUTHOR(S): Na, Na; Hu, Yuping; Ouyang, Jin; Baeyens, Willy R. G.; Delanghe, Joris R.; Taes, Youri E. C.; Xie, Mengxia; Chen, Huaying; Yang, Yiping
CORPORATE SOURCE: Department of Chemistry, Beijing Normal University, Beijing, 100875, Peop. Rep. China
SOURCE: Talanta (2006), 69(4), 866-872
CODEN: TLNTA2; ISSN: 0039-9140
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 30 May 2006

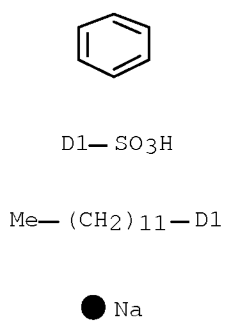
AB A new strategy for chiral separation by capillary electrophoresis employing modified-nanoparticles as chiral selector is described for clenbuterol anal. Nanoparticles modified with β-cyclodextrin (β-CD) form a large surface area platform to serve as a pseudostationary chiral phase, which can be applied for the enhancement of the enantiosepn. The application of 4 kinds of nanoparticles was investigated (multi-walled nanotubes (MWNTs), polystyrene (PS), TiO_2 and Al_2O_3) modified with single layer β-CD as chiral selector in the enantiosepn. of clenbuterol by capillary electrophoresis (CE). Successful clenbuterol enantiosepn. could be achieved with the β-CD-modified MWNTs as chiral selector. X-ray diffraction (XRD) and Fourier transform IR spectroscopy (FTIR) confirmed the β-CD modification of the nanoparticles. The effects of nanoparticles, surfactant, chiral selector (β-CD) and run buffer were studied in relation to the enantiomeric separation of clenbuterol. This

study opens attractive perspectives for the use of modified nanoparticles for chiral separational purposes in CE.

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(dispersed nanoparticles modified with β-cyclodextrin as chiral selector to enhance enantiosepn. of clenbuterol with capillary electrophoresis)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 64-3 (Pharmaceutical Analysis)

ST clenbuterol enantiosepn nanoparticle cyclodextrin surfactant capillary electrophoresis

IT Nanotubes
(carbon, multiwalled; dispersed nanoparticles modified with β-cyclodextrin as chiral selector to enhance enantiosepn. of clenbuterol with capillary electrophoresis)

IT Capillary electrophoresis
Nanoparticles
Surface treatment
(dispersed nanoparticles modified with β-cyclodextrin as chiral selector to enhance enantiosepn. of clenbuterol with capillary electrophoresis)

IT Enantiomers
(enantiosepn.; dispersed nanoparticles modified with β-cyclodextrin as chiral selector to enhance enantiosepn. of clenbuterol with capillary electrophoresis)

IT 37148-27-9, Clenbuterol
(dispersed nanoparticles modified with β-cyclodextrin as chiral selector to enhance enantiosepn. of clenbuterol with capillary electrophoresis)

IT 151-21-3, Sodium dodecyl sulfate, analysis 1344-28-1, Alumina, analysis 7585-39-9, β-Cyclodextrin 9002-93-1, Triton X-100 9003-53-6, Polystyrene 13463-67-7, Titania, analysis 25155-30-0, Sodium dodecylbenzene sulfonate
(dispersed nanoparticles modified with β-cyclodextrin as chiral selector to enhance enantiosepn. of clenbuterol with capillary electrophoresis)

IT 7440-44-0, Carbon, analysis
(nanotubes, multiwalled; dispersed nanoparticles modified with β-cyclodextrin as chiral selector

to enhance enantiosepn. of clenbuterol with capillary electrophoresis)

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 35 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:351490 HCAPLUS Full-text

DOCUMENT NUMBER: 145:16942

TITLE: Changes in the Fluorescence Spectrum of Individual Single-Wall Carbon Nanotubes Induced by Light-Assisted Oxidation with Hydroperoxide

AUTHOR(S): Zhang, M.; Yudasaka, M.; Miyauchi, Y.; Maruyama, S.; Iijima, S.

CORPORATE SOURCE: SORST-JST, c/o NEC, Ibaraki, 305-8501, Japan

SOURCE: Journal of Physical Chemistry B (2006), 110(18), 8935-8940

CODEN: JPCBFK; ISSN: 1520-6106

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

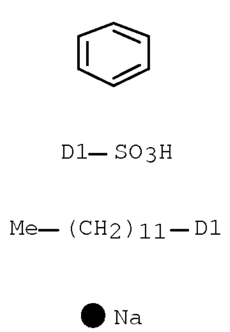
ED Entered STN: 19 Apr 2006

AB Through fluorescence-spectrum measurements, we investigated the effects of light-assisted oxidation with H2O2 (LAOx) on single-wall carbon nanotubes (SWNTs) that were individually dispersed in an aqueous solution of surfactant. The intensities of the fluorescence spectra were decreased remarkably by the LAOx when the light's wavelength was 400-500 nm and a little when 600-700 nm. The spectrum intensity did not recover even when the pH was restored to an original value of 6.5. The spectra changed little when the LAOx wavelength was 500-600 nm or the light was not irradiated. In addition, the effect of LAOx on SWNTs was related to the diams. of SWNTs. We inferred that these phenomena reflected that H2O2 was dissociated by absorbing the fluorescence light emitted from optically excited SWNTs, which, in turn, accelerated the burning out of SWNTs.

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(changes in fluorescent spectra of individual single-Wall carbon nanotubes induced by light-assisted oxidation with hydroperoxide)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 57, 66

ST fluorescence single wall carbon nanotube light assisted oxidn hydroperoxide

IT UV and visible spectra
(absorption; changes in fluorescent spectra of individual single-Wall carbon nanotubes induced by light-assisted oxidation with hydroperoxide)

IT Nanotubes
(carbon; changes in fluorescent spectra of individual single-Wall carbon nanotubes induced by light-assisted oxidation with hydroperoxide)

IT Fluorescence
Oxidation
(changes in fluorescent spectra of individual single-Wall carbon nanotubes induced by light-assisted oxidation with hydroperoxide)

IT 7789-20-0, Water-d2 25155-30-0, Sodium dodecylbenzene sulfonate
(changes in fluorescent spectra of individual single-Wall carbon nanotubes induced by light-assisted oxidation with hydroperoxide)

IT 7722-84-1, Hydrogen peroxide, reactions
(changes in fluorescent spectra of individual single-Wall carbon nanotubes induced by light-assisted oxidation with hydroperoxide)

IT 7440-44-0, Carbon, properties
(nanotubes; changes in fluorescent spectra of individual single-Wall carbon nanotubes induced by light-assisted oxidation with hydroperoxide)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 36 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:284017 HCAPLUS Full-text
DOCUMENT NUMBER: 144:433727
TITLE: Method for preparing carbon nanotube-poly(vinylimidazole) nanocomposite material
INVENTOR(S): Yang, Zhenglong; Pu, Hongting
PATENT ASSIGNEE(S): Tongji University, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 10 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1651507	A	20050810	CN 2004-10089036	20041202

PRIORITY APPLN. INFO.: CN 2004-10089036 20041202

ED Entered STN: 28 Mar 2006

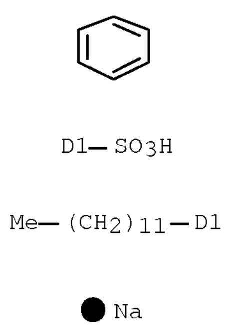
AB The method comprises (1) adding 100-1000 mg multi-wall carbon nanotubes in 50 mL mixed strong acid solution, treating under ultrasonic vibration for 3-12 h, adding in water, standing for >12 h, filtering, water washing, drying to

obtain chemical etched carbon nanotubes; (2) dispersing 50-500 mg above etched carbon nanotubes in absolute ethanol, dropping 5-50 mL 0.005-0.025 g/mL coupling agent/ethanol solution, continuous reacting for 10-40 h, centrifugal filtering, water washing, vacuum drying at <40° for >12 h; (3) adding buffering agent, emulsifier and water in 50-100 mg treated carbon nanotube-ethanol solution, dropping 5-25 mg vinylimidazole monomer, pre-emulsifying for 0.5-2 h, heating to 75-85°, dropping 5-50 mL 0.012 g/mL persulfate solution, polymerizing for 6-12 h to obtain emulsion, centrifugal filtering, dispersing in toluene, repeating for 2-4 times to remove polyvinylimidazole homopolymer and byproduct, vacuum drying at 60-70° for >12 h to obtain the title material. The coupling agent is KH-570, Volan or titanate 55. The buffering agent is sodium bicarbonate, sodium carbonate, potassium carbonate, potassium phosphate, calcium hydrophosphate, calcium citrate, potassium dihydrogenphosphate, dipotassium hydrogen phosphate, sodium dihydrogenphosphate or disodium hydrogen phosphate. The emulsifier is sodium dodecyl benzenesulfonate, lauryl sodium sulfate, hexadecyl tri-Me ammonium chloride, octadecyl tri-Me ammonium chloride, OP-10, OP-15, OP-20, Tween-20, Tween-40, Tween-60, Tween-80, Span-20, Span-60 or Span-80. The persulfate is ammonium persulfate or potassium persulfate.

IT 25155-30-0, Sodium dodecyl benzene sulfonate
(preparation of carbon nanotube-poly(vinylimidazole) nanocomposite material)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



IC ICM C08L039-04
ICS C08K009-00; C08K003-04; C08F126-06; C08F002-22; C08F002-44

CC 37-6 (Plastics Manufacture and Processing)

ST carbon nanotube polyvinylimidazole nanocomposite prepn

IT Nanotubes
(carbon; preparation of carbon nanotube -poly(vinylimidazole) nanocomposite material)

IT Polymerization catalysts
(persulfates; preparation of carbon nanotube -poly(vinylimidazole) nanocomposite material)

IT Coupling agents
Emulsifying agents
Nanocomposites
(preparation of carbon nanotube-poly(vinylimidazole) nanocomposite material)

IT 2530-85-0, KH-570 50642-15-4, Volan
(coupling agents; preparation of carbon nanotube

-poly(vinylimidazole) nanocomposite material)

IT 7440-44-0, Carbon, uses
(nanotubes; preparation of carbon nanotube
-poly(vinylimidazole) nanocomposite material)

IT 7727-21-1, Potassium persulfate 7727-54-0, Ammonium persulfate
(preparation of carbon nanotube-poly(vinylimidazole)
nanocomposite material)

IT 25232-42-2P, Poly(1-vinyl imidazole)
(preparation of carbon nanotube-poly(vinylimidazole)
nanocomposite material)

IT 112-02-7, Hexadecyl trimethyl ammonium chloride 112-03-8, Octadecyl trimethyl ammonium chloride 144-55-8, Sodium bicarbonate, uses 151-21-3, Lauryl sodium sulfate, uses 497-19-8, Sodium carbonate, uses 584-08-7, Potassium carbonate 1338-39-2, Span 20 1338-41-6, Span 60 1338-43-8, Span 80 7558-79-4, Disodium hydrogen phosphate 7558-80-7, Sodium dihydrogenphosphate 7664-93-9, Sulfuric acid, uses 7693-13-2, Calcium citrate 7697-37-2, Nitric acid, uses 7757-93-9 7758-11-4, Dipotassium hydrogen phosphate 7778-53-2 7778-77-0, Potassium dihydrogenphosphate 9005-64-5, Tween 20 9005-65-6, Tween 80 9005-66-7, Tween 40 9005-67-8, Tween 60 9036-19-5 25155-30-0, Sodium dodecyl benzene sulfonate 153301-99-6, OP 10 (Chinese surfactant)
(preparation of carbon nanotube-poly(vinylimidazole)
nanocomposite material)

IT 64157-14-8
(titanate 55, coupling agents; preparation of carbon
nanotube-poly(vinylimidazole) nanocomposite material)

L28 ANSWER 37 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:271627 HCAPLUS Full-text
DOCUMENT NUMBER: 144:468848
TITLE: Interfacial in situ polymerization of single wall carbon nanotube/nylon 6,6 nanocomposites
AUTHOR(S): Haggenmueller, Reto; Du, Fangming; Fischer, John E.; Winey, Karen I.
CORPORATE SOURCE: Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, PA, 19104-6272, USA
SOURCE: Polymer (2006), 47(7), 2381-2388
CODEN: POLMAG; ISSN: 0032-3861
PUBLISHER: Elsevier Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

ED Entered STN: 23 Mar 2006

AB An interfacial polymerization method for nylon 6,6 was adapted to produce nanocomposites with single wall carbon nanotubes (SWNT) via in situ polymerization SWNT were incorporated in purified, functionalized or surfactant stabilized forms. The functionalization of SWNT was characterized by FTIR, Raman spectroscopy, and TGA and the SWNT dispersion was characterized by optical microscopy before and after the in situ polymerization SWNT functionalization and surfactant stabilization improved the nanotube dispersion in solvents but only functionalized SWNT showed a good dispersion in composites, whereas purified and surfactant stabilized SWNT resulted in poor dispersion and nanotube agglomeration. Weak shear flow induced SWNT flocculation in these nanocomposites. The elec. and mech. properties of the SWNT/nylon nanocomposites are briefly discussed in terms of SWNT loading, dispersion, length and type of functionalization.

IT 25155-30-0, Dodecylbenzenesulfonic acid sodium salt
(surfactant; interfacial in-situ polymerization of single wall

```
        carbon nanotube/nylon 6,6 nanocomposites and
        their properties)
RN   25155-30-0  HCAPLUS
CN   Benzenesulfonic acid, dodecyl-, sodium salt (1:1)  (CA INDEX NAME)
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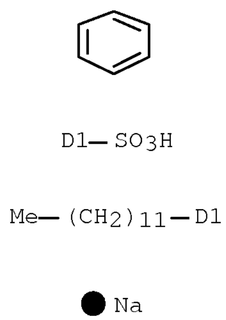
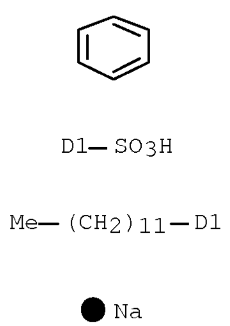



```
CC   37-5 (Plastics Manufacture and Processing)
ST   carbon nanotube nylon polymn fiber property
IT   Nanotubes
        (carbon; interfacial in-situ polymerization of single wall
        carbon nanotube/nylon 6,6 nanocomposites and
        their properties)
IT   Electric conductivity
     Young's modulus
        (interfacial in-situ polymerization of single wall carbon
        nanotube/nylon 6,6 nanocomposites and their properties)
IT   Polyamides, preparation
        (interfacial in-situ polymerization of single wall carbon
        nanotube/nylon 6,6 nanocomposites and their properties)
IT   Polyamide fibers, preparation
        (interfacial in-situ polymerization of single wall carbon
        nanotube/nylon 6,6 nanocomposites and their properties)
IT   32131-17-2P, Nylon 6,6, preparation
        (fibers; interfacial in-situ polymerization of single wall carbon
        nanotube/nylon 6,6 nanocomposites and their properties)
IT   7440-44-0, Carbon, uses
        (nanotubes; interfacial in-situ polymerization of single wall
        carbon nanotube/nylon 6,6 nanocomposites and
        their properties)
IT   25155-30-0, Dodecylbenzenesulfonic acid sodium salt
        (surfactant; interfacial in-situ polymerization of single wall
        carbon nanotube/nylon 6,6 nanocomposites and
        their properties)
REFERENCE COUNT:         41    THERE ARE 41 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

L28  ANSWER 38 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2006:241452  HCAPLUS  Full-text
DOCUMENT NUMBER:         146:122975
TITLE:                   Uniform directional alignment of single-walled
                         carbon nanotubes in viscous
                         polymer flow
AUTHOR(S):               Camponeschi, Erin; Florkowski, Bill; Vance,
```

Richard; Garrett, Glenn; Garmestani, Hamid;
Tannenbaum, Rina
CORPORATE SOURCE: aSchool of Materials Science and Engineering,
Georgia Institute of Technology, Atlanta, GA,
30332, USA
SOURCE: PMSE Preprints (2006), 94, 297-298
CODEN: PPMRA9; ISSN: 1550-6703
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English
ED Entered STN: 17 Mar 2006
AB In this work, we probed the effects of shear flow on the alignment of dispersed single-walled carbon nanotubes in polymer solns. Two different systems were compared: single-walled carbon nanotubes dispersed using an anionic surfactant and single-walled carbon nanotubes dispersed using an anionic surfactant and CM cellulose. It was determined that the addition of the weakly binding polymer increased the degree of dispersion of the carbon nanotubes and the ability to induce their alignment when subjected to shear forces.
IT 25155-30-0, Sodium dodecyl benzene sulfonate
(uniform directional alignment of single-walled carbon nanotubes in viscous polymer flow)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 57
ST carbon nanotube CM cellulose dispersion
shear flow alignment
IT Surfactants
(anionic; uniform directional alignment of single-walled carbon nanotubes in viscous polymer flow)
IT Nanotubes
(carbon, SWNT; uniform directional alignment of single-walled carbon nanotubes in viscous polymer flow)
IT Shear stress
(uniform directional alignment of single-walled carbon nanotubes in viscous polymer flow)
IT 7440-44-0, Carbon, properties
(nanotubes, SWNT; uniform directional alignment of single-walled carbon nanotubes in viscous polymer flow)

IT 9004-32-4, Carboxymethylcellulose 25155-30-0, Sodium dodecyl benzene sulfonate
(uniform directional alignment of single-walled carbon nanotubes in viscous polymer flow)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 39 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:71557 HCAPLUS Full-text

DOCUMENT NUMBER: 144:319433

TITLE: Structure of Semidilute Single-Wall Carbon Nanotube Suspensions and Gels

AUTHOR(S): Hough, L. A.; Islam, M. F.; Hammouda, B.; Yodh, A. G.; Heiney, P. A.

CORPORATE SOURCE: Department of Physics and Astronomy, University of Pennsylvania, Philadelphia, PA, 19104-6396, USA

SOURCE: Nano Letters (2006), 6(2), 313-317
CODEN: NALEFD; ISSN: 1530-6984

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

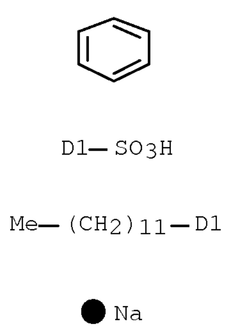
ED Entered STN: 26 Jan 2006

AB The microscopic network structure of surfactant-stabilized single-wall carbon nanotubes (SWNTs) in water was studied as a function of SWNT concentration in the semidilute (overlapping) regime using small-angle neutron scattering (SANS). Most of the samples exhibit rigid rod behavior (i.e., Q-1 intensity variation) at large scattering wavevector, Q, and a crossover to network behavior (i.e., approx. Q-2 intensity variation) at low Q. The mesh size, ξ, of the network was determined from the crossover of rigid rod to network behavior in the SANS intensity profile and decreases with increasing SWNT concentration When the dispersion quality of these associating rigid rods was degraded, only approx. Q-2 intensity variation was observed at both high and low Q. Small-angle x-ray scattering measurements of the same stable dispersions were relatively insensitive to network structure because of poor contrast between SWNTs and surfactant.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(structure of semidilute surfactant stabilized single-wall carbon nanotube suspensions and gels)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



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CC   66-4 (Surface Chemistry and Colloids)
ST   surfactant stabilized carbon nanotube
     suspension gels
IT   Nanotubes
        (carbon; structure of semidilute surfactant
        stabilized single-wall carbon nanotube
        suspensions and gels)
IT   Neutron scattering
        (small-angle; structure of semidilute surfactant
        stabilized single-wall carbon nanotube
        suspensions and gels)
IT   Gels
       Surfactants
       Suspensions
        (structure of semidilute surfactant stabilized
        single-wall carbon nanotube suspensions
        and gels)
IT   25155-30-0, Sodium dodecylbenzenesulfonate
        (structure of semidilute surfactant stabilized
        single-wall carbon nanotube suspensions
        and gels)
IT   7440-44-0, Carbon, properties
        (structure of semidilute surfactant stabilized
        single-wall carbon nanotube suspensions
        and gels)
REFERENCE COUNT:         38    THERE ARE 38 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

L28  ANSWER 40 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2006:39028  HCAPLUS  Full-text
DOCUMENT NUMBER:         144:297334
TITLE:                   Uniform Directional Alignment of Single-Walled
                         Carbon Nanotubes in Viscous
                         Polymer Flow
AUTHOR(S):               Camponeschi, Erin; Florkowski, Bill; Vance,
                         Richard; Garrett, Glenn; Garmestani, Hamid;
                         Tannenbaum, Rina
CORPORATE SOURCE:        School of Materials Science and Engineering,
                         Georgia Institute of Technology, Atlanta, GA,
                         30332, USA
SOURCE:                  Langmuir (2006), 22(4), 1858-1862
                         CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER:               American Chemical Society
DOCUMENT TYPE:           Journal
LANGUAGE:                English
ED   Entered STN:  15 Jan 2006
AB    In this work, we probed the effects of shear flow on the alignment of
      dispersed single-walled carbon nanotubes in polymer solns.  Two different
      systems were compared: single-walled carbon nanotubes dispersed using an
      anionic surfactant and single-walled carbon nanotubes dispersed using an
      anionic surfactant and a weakly binding polymer.  It was determined that the
      addition of the weakly binding polymer increased the degree of dispersion of
      the carbon nanotubes and the ability to induce their alignment when subjected
      to shear forces.
IT   25155-30-0, Sodium dodecyl benzene sulfonate
        (uniform directional alignment of single-walled carbon
        nanotubes in viscous polymer flow)
RN   25155-30-0  HCAPLUS
CN   Benzenesulfonic acid, dodecyl-, sodium salt (1:1)  (CA INDEX NAME)
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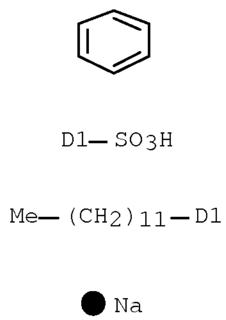


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CC   57-8 (Ceramics)
     Section cross-reference(s): 37
ST   single walled carbon nanotube CMC
     dispersion shear flow alignment
IT   Nanotubes
        (carbon, SWNT; uniform directional alignment of
        single-walled carbon nanotubes in viscous
        polymer flow)
IT   Raman spectra
     Shear stress
     Transmission electron microscopy
        (uniform directional alignment of single-walled carbon
        nanotubes in viscous polymer flow)
IT   7440-44-0, Carbon, properties
        (nanotubes, SWNT; uniform directional alignment
        of single-walled carbon nanotubes in viscous
        polymer flow)
IT   9004-32-4, Carboxymethylcellulose 25155-30-0, Sodium dodecyl
     benzene sulfonate
        (uniform directional alignment of single-walled carbon
        nanotubes in viscous polymer flow)
REFERENCE COUNT:         56    THERE ARE 56 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

L28  ANSWER 41 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2005:1258718  HCAPLUS  Full-text
DOCUMENT NUMBER:         144:132955
TITLE:                   Chirality characterization of dispersed
                         single wall carbon nanotubes
AUTHOR(S):               Namkung, Min; Williams, Phillip A.; Mayweather,
                         Candis D.; Wincheski, Buzz; Park, Cheol; Namkung,
                         Juock S.
CORPORATE SOURCE:        NASA Langley Research Center, Hampton, VA, 23681,
                         USA
SOURCE:                  Materials Research Society Symposium Proceedings
                         (2005), 872(Micro- and Nanosystems--Materials and
                         Devices), 497-502
                         CODEN: MRSPDH; ISSN: 0272-9172
PUBLISHER:               Materials Research Society
DOCUMENT TYPE:           Journal
LANGUAGE:                English
```

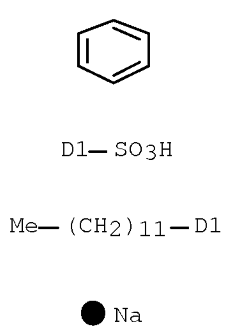
ED Entered STN: 01 Dec 2005

AB Raman scattering and optical absorption spectroscopy are used for the chirality characterization of HiPco single wall carbon nanotubes (SWNTs) dispersed in aqueous solution with the surfactant sodium dodecylbenzene sulfonate. Radial breathing mode (RBM) Raman peaks for semiconducting and metallic SWNTs are identified by directly comparing the Raman spectra with the Kataura plot. The SWNT diams. are calculated from these resonant peak positions. Next, a list of (n, m) pairs, yielding the SWNT diams. within a few percent of that obtained from each resonant peak position, is established. The interband transition energies for the list of SWNT (n, m) pairs are calculated based on the tight binding energy expression for each list of the (n, m) pairs, and the pairs yielding the closest values to the corresponding exptl. optical absorption peaks are selected. The results reveal (1, 11), (4, 11), (5, 12), and (5, 9) among the most probable chiralities for the semiconducting nanotubes. The results also reveal that (4, 16), (6, 12) and (8, 8) are the most probable chiralities for the metallic nanotubes. Directly relating the Raman scattering data to the optical absorption spectra, the present method is considered the simplest technique currently available. Another advantage of this technique is the use of the ES11, ES33, and EM22 peaks in the optical absorption spectrum in the anal. to enhance the accuracy in the results.

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(surfactant; Raman/optical absorption spectroscopy characterization of chirality of single-wall carbon nanotubes dispersed in aqueous solution with the surfactant sodium dodecylbenzene sulfonate)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 57-8 (Ceramics)
Section cross-reference(s): 66

ST carbon nanotube single wall chirality; Raman scattering spectroscopy single wall carbon nanotube chirality; optical absorption spectroscopy single wall carbon nanotube chirality

IT Absorption spectroscopy
Chirality
Raman spectroscopy
(Raman/optical absorption spectroscopy characterization of chirality of single-wall carbon nanotubes dispersed in aqueous solution with the surfactant

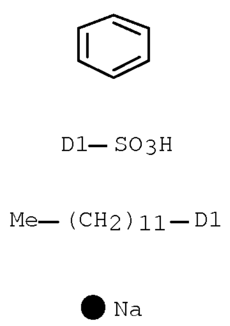
```
        sodium dodecylbenzene sulfonate)
IT   Suspensions
        (carbon nanotube; Raman/optical absorption
        spectroscopy characterization of chirality of single-wall
        carbon nanotubes dispersed in aqueous solution
        with the surfactant sodium
        dodecylbenzene sulfonate)
IT   Nanotubes
        (carbon, single-wall, aqueous suspension;
        Raman/optical absorption spectroscopy characterization of chirality
        of single-wall carbon nanotubes
        dispersed in aqueous solution with the surfactant
        sodium dodecylbenzene sulfonate)
IT   7440-44-0, Carbon, properties
        (nanotubes, single-walled, aqueous suspensions;
        Raman/optical absorption spectroscopy characterization of chirality
        of single-wall carbon nanotubes
        dispersed in aqueous solution with the surfactant
        sodium dodecylbenzene sulfonate)
IT   25155-30-0, Sodium dodecylbenzene
     sulfonate
        (surfactant; Raman/optical absorption spectroscopy
        characterization of chirality of single-wall carbon
        nanotubes dispersed in aqueous solution with the
        surfactant sodium dodecylbenzene
        sulfonate)
REFERENCE COUNT:         13    THERE ARE 13 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

L28  ANSWER 42 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2005:1066918  HCAPLUS  Full-text
DOCUMENT NUMBER:         143:411712
TITLE:                   Method for loading platinum onto the surface of
                         carbon nanotube with high
                         density by using chemical deposition method
INVENTOR(S):             Lin, Changjian; Wang, Yu; Chen, Ying
PATENT ASSIGNEE(S):      Xiamen University, Peop. Rep. China
SOURCE:                  Faming Zhuanli Shenqing Gongkai Shuomingshu, 8 pp.
                         CODEN: CNXXEV
DOCUMENT TYPE:           Patent
LANGUAGE:                Chinese
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
     CN 1559686           A     20050105    CN 2004-10008326       20040304
PRIORITY APPLN. INFO.:                      CN 2004-10008326       20040304

ED   Entered STN:  06 Oct 2005
AB    The title method includes: (1) adding 0.1-10g carbon nanotube, 1-100g
      surfactant, and 0.05-10g (calculated by platinum) platinum salt into 1L
      polyol, (2) dispersing the mixture by ultrasonic wave until homogeneous, (3)
      heating the mixture to 120-180ÅC and reacting for 1-2 h, (4) centrifugating,
      washing and drying to obtain the title product.  This product can be used as
      electro-catalyst, and has high catalytic activity to methanol oxidation This
      product can be used in fuel cells or other field.
IT   25155-30-0, Sodium dodecyl benzene sulfonate
        (method for loading platinum onto the surface of carbon
```

nanotube with high d. by using chemical deposition method)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



IC ICM B01J037-02
ICS B01J032-00; B01J035-02
CC 51-11 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 57
ST platinum carbon nanotube chem deposition fuel cell
IT Nanotubes
(carbon; method for loading platinum onto the surface of carbon nanotube with high d. by using chemical deposition method)
IT Fuel cells
Oxidation
(method for loading platinum onto the surface of carbon nanotube with high d. by using chemical deposition method)
IT 7440-06-4P, Platinum, uses
(method for loading platinum onto the surface of carbon nanotube with high d. by using chemical deposition method)
IT 7697-37-2, Nitric acid, uses
(method for loading platinum onto the surface of carbon nanotube with high d. by using chemical deposition method)
IT 57-09-0, Cetyl trimethyl ammonium bromide 107-21-1, Ethylene glycol, uses 151-21-3, Sodium dodecyl sulfate, uses 1119-94-4, Dodecyl trimethyl ammonium bromide 2386-53-0, Sodium dodecyl sulfonate 2926-30-9, Sodium trifluoromethanesulfonate 6941-37-3, Cetyl trimethyl ammonium perchlorate 25155-30-0, Sodium dodecyl benzene sulfonate 143314-16-3 155371-19-0 174501-64-5 174501-65-6
(method for loading platinum onto the surface of carbon nanotube with high d. by using chemical deposition method)
IT 67-56-1, Methanol, reactions 10025-65-7, Platinum dichloride 10025-99-7, Potassium chloroplatinate 13454-96-1, Platinum tetrachloride 16923-58-3 16941-12-1, Chloroplatinic acid
(method for loading platinum onto the surface of carbon nanotube with high d. by using chemical deposition method)
IT 7440-44-0, Carbon, properties
(nanotubes; method for loading platinum onto the surface of carbon nanotube with high d. by using chemical deposition method)

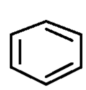
L28 ANSWER 43 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:604202 HCAPLUS Full-text
DOCUMENT NUMBER: 143:270784
TITLE: Dispersion of Single-Walled Carbon Nanotubes of Narrow Diameter Distribution
AUTHOR(S): Tan, Yongqiang; Resasco, Daniel E.
CORPORATE SOURCE: School of Chemical Biological and Materials Engineering, University of Oklahoma, Norman, OK, 73019, USA
SOURCE: Journal of Physical Chemistry B (2005), 109(30), 14454-14460
CODEN: JPCBFK; ISSN: 1520-6106
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 14 Jul 2005
AB The dispersibility and bundle defoliation of single-walled carbon nanotubes (SWNTs) of small diameter (<1 nm) were evaluated for nanotubes prepared using the CoMoCAT [Co and Mo bimetallic catalyst] with narrow distribution of diams. Photoluminescence and Raman spectra show that CoMoCAT exhibits a uniquely narrow distribution of (n,m) structures that remains unchanged after dispersion. This narrow distribution was used to measure the dispersability of nanotubes from optical absorption spectra in terms of resonance ratio and normalized width. These two ratios provide a tool to compare different dispersion parameters (time of sonication, degree of centrifugation, etc.). From this comparison, an optimal procedure that maximizes the spectral features was selected and used to compare surfactant dispersants at different pH and concns. Several surfactants were as good or even better than dodecylbenesulfonic acid sodium salt (NaDDBS). Despite differences in dispersion ability, none of the surfactants studied generated new features in the absorption spectra nor changed the distribution of nanotube types.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(dispersant; dispersion of single-walled carbon nanotubes of narrow diameter distribution and efficacy of surfactant dispersants)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO_3H

Me— $(CH_2)_{11}$ —D1

● Na

CC 57-8 (Ceramics)

ST carbon nanotube prepn cobalt molybdenum catalyst dispersion defoliation surfactant; sonication centrifugation multiwalled carbon nanotube dispersion absorption spectrum

```
IT   Alcohols, uses
        (C12-14, ethoxylated, Surfonic L24-7, dispersant;
        dispersion of single-walled carbon
        nanotubes of narrow diameter distribution and efficacy of
        surfactant dispersants)
IT   Nanotubes
        (carbon; dispersion of single-walled
        carbon nanotubes of narrow diameter distribution and
        efficacy of surfactant dispersants)
IT   Dispersing agents
       Dispersion (of materials)
     Luminescence
        (dispersion of single-walled carbon
        nanotubes of narrow diameter distribution and efficacy of
        surfactant dispersants)
IT   57-09-0, CTAB   138-32-9, Cetyltrimethylammonium p-toluenesulfonate
     151-21-3, Sodium dodecyl sulfate, uses   361-09-1, Sodium Cholate
     1322-93-6, Aerosol OS   9002-93-1, Triton X-100   9005-65-6, Tween 80
     12626-49-2, Dowfax 2A1 25155-30-0, Sodium
     dodecylbenzenesulfonate   157710-33-3, Dowfax 8390   167290-55-3,
     Surfynol CT 131   414869-51-5, Surfynol CT 324   497226-81-0,
     Ceralution F
        (dispersant; dispersion of single-walled
        carbon nanotubes of narrow diameter distribution and
        efficacy of surfactant dispersants)
IT   7439-98-7, Molybdenum, uses   7440-48-4, Cobalt, uses
        (nanotube preparation catalyst; dispersion of
        single-walled carbon nanotubes of narrow diameter
        distribution and efficacy of surfactant
        dispersants)
IT   7631-86-9, Silica, uses
        (support; dispersion of single-walled carbon
        nanotubes of narrow diameter distribution and efficacy of
        surfactant dispersants)
REFERENCE COUNT:         34    THERE ARE 34 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

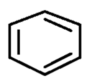
L28  ANSWER 44 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2005:599121  HCAPLUS  Full-text
DOCUMENT NUMBER:         143:267627
TITLE:                   Carbon Nanotube-Adsorbed
                         Polystyrene and Poly(methyl methacrylate)
                         Microspheres
AUTHOR(S):               Jin, Hyoung-Joon; Choi, Hyoung Jin; Yoon, Seok Ho;
                         Myung, Seung Jun; Shim, Sang Eun
CORPORATE SOURCE:        Department of Polymer Science and Engineering,
                         Inha University, Incheon, 402-751, S. Korea
SOURCE:                  Chemistry of Materials (2005), 17(16), 4034-4037
                         CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER:               American Chemical Society
DOCUMENT TYPE:           Journal
LANGUAGE:                English
ED   Entered STN:  12 Jul 2005
AB    Carbon nanotubes were incorporated onto the surface of polystyrene (PS) and
      poly(Me methacrylate) (PMMA) microspheres by a simple, potentially scalable
      process.  The PS and PMMA microspheres, 3.0 and 6.5 μm in size, resp., were
      prepared by dispersion polymerization  The multiwalled carbon nanotubes were
      prepared by thermal chemical vapor deposition and after purification the
      bundles were dispersed in water using surfactants, e.g., anionic sodium
```

dodecyl sulfate (SDS) and sodium dodecylbenzenesulfonate (NaDDBS), cationic cetyltrimethylammonium bromide (CTAB), and nonionic Triton X-100. The PS and PMMA microspheres were added to the nanotube dispersions and kept at ambient conditions for 48 h without stirring, to effect adsorption of the nanotubes onto the microspheres. Even after sonicating the carbon nanotube-adsorbed microspheres in deionized water, the individual nanotubes remained strongly adhered to the PS microsphere surfaces. The four-probe elec. measurements of the specimens gave a DC conductivity (σDC) of 1.9 + 10-4 to 6.3 + 10-5 S/cm at room temperature The carbon nanotube -microsphere are of interest as the dispersed phase of electrorheol. fluids.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(dispersion stabilizer; preparation and conductivity of carbon nanotube-adsorbed polystyrene and poly(Me methacrylate) microspheres for electrorheol. fluids)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO_3H

Me— $(CH_2)_{11}$ —D1

● Na

CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 57, 76

ST carbon nanotube adsorbed polymer microsphere dispersion cond electrorheol fluid

IT Surfactants
(anionic; preparation and conductivity of carbon nanotube -adsorbed polystyrene and poly(Me methacrylate) microspheres for electrorheol. fluids)

IT Nanotubes
(carbon; preparation and conductivity of carbon nanotube-adsorbed polystyrene and poly(Me methacrylate) microspheres for electrorheol. fluids)

IT Surfactants
(cationic; preparation and conductivity of carbon nanotube -adsorbed polystyrene and poly(Me methacrylate) microspheres for electrorheol. fluids)

IT Vapor deposition process
(chemical; preparation and conductivity of carbon nanotube -adsorbed polystyrene and poly(Me methacrylate) microspheres for electrorheol. fluids)

IT Surfactants
(nonionic; preparation and conductivity of carbon nanotube -adsorbed polystyrene and poly(Me methacrylate) microspheres for electrorheol. fluids)

IT Dispersion (of materials)
Electric conductivity

Electrorheological fluids
(preparation and conductivity of carbon nanotube-adsorbed polystyrene and poly(Me methacrylate) microspheres for electrorheol. fluids)

IT 57-09-0, Cetyltrimethylammonium bromide 151-21-3, Sodium dodecyl sulfate, uses 9002-93-1, Triton X-100 25155-30-0, Sodium dodecylbenzenesulfonate
(dispersion stabilizer; preparation and conductivity of carbon nanotube-adsorbed polystyrene and poly(Me methacrylate) microspheres for electrorheol. fluids)

IT 9003-53-6P, Polystyrene 9011-14-7P, Poly(methyl methacrylate)
(microspheres; preparation and conductivity of carbon nanotube-adsorbed polystyrene and poly(Me methacrylate) microspheres for electrorheol. fluids)

REFERENCE COUNT: 58 THERE ARE 58 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 45 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:392937 HCAPLUS Full-text
DOCUMENT NUMBER: 143:78950
TITLE: Multiwalled carbon nanotube /polymer nanocomposites: Processing and properties
AUTHOR(S): Dalmas, F.; Chazeau, L.; Gauthier, C.; Masenelli-Varlot, K.; Dendievel, R.; Cavaille, J. Y.; Forro, L.
CORPORATE SOURCE: GEMPPM, INSA de Lyon, Villeurbanne, 69621, Fr.
SOURCE: Journal of Polymer Science, Part B: Polymer Physics (2005), 43(10), 1186-1197
CODEN: JPBPEM; ISSN: 0887-6266
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

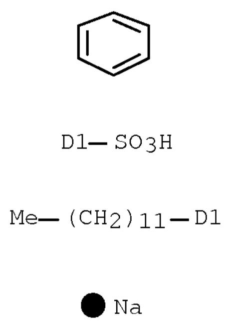
ED Entered STN: 09 May 2005

AB Nanocomposite materials were prepared with an amorphous poly(styrene-co-Bu acrylate) latex as a matrix with multiwalled carbon nanotubes (MWNT) as fillers. The microstructure of the related films was observed by transmission electron microscopy, which showed that a good dispersion of MWNT within the matrix was obtained. The linear and nonlinear mech. behavior and the elec. properties were analyzed. Mech. characterization showed a mech. reinforcement effect of the MWNT with a relatively small decrease of the elongation at break. The composite materials exhibited an elastic behavior with increasing temperature, although the matrix alone became viscous under the same conditions. The elec. conductivity of the composite filled with 3 vol % MWNT was studied during a tensile test, which highlighted the late damage of the material.

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(surfactant)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC   37-6 (Plastics Manufacture and Processing)
     Section cross-reference(s): 38, 76
ST   carbon nanotube nanocomposite styrene butyl
     acrylate copolymer latex film; nanocomposite plasticization elec cond
     mech loss stress strain viscoelasticity
IT   Nanotubes
        (carbon, filler; multiwalled carbon
        nanotube/polymer nanocomposites)
IT   Electric conductivity
     Mechanical loss
     Nanocomposites
     Shear modulus
     Storage modulus
     Stress-strain relationship
     Young's modulus
        (multiwalled carbon nanotube/polymer
        nanocomposites)
IT   Plastic films
     Plasticization
        (plasticizing effect on multiwalled carbon
        nanotube/polymer nanocomposites)
IT   25767-47-9, Butyl acrylate-styrene copolymer
        (latex; multiwalled carbon nanotube/polymer
        nanocomposites)
IT   7440-44-0, Carbon, uses
        (nanotubes, filler; multiwalled carbon
        nanotube/polymer nanocomposites)
IT   25155-30-0, Sodium dodecylbenzene
     sulfonate
        (surfactant)
REFERENCE COUNT: 32   THERE ARE 32 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

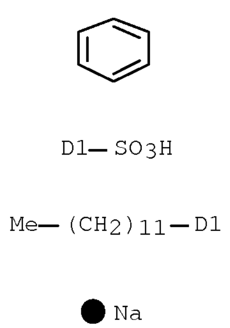
L28 ANSWER 46 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:352498 HCAPLUS Full-text
DOCUMENT NUMBER: 143:104090
TITLE: An explanation of dispersion states of
                         single-walled carbon nanotubes
                         in solvents and aqueous surfactant
                         solutions using solubility parameters
AUTHOR(S):   Ham, Hyeong Taek; Choi, Yeong Suk; Chung, In Jae
CORPORATE SOURCE: Department of Chemical and Biomolecular
                         Engineering, KAIST (Korea Advanced Institute of

Science and Technology), 373-1 Guseong-dong,
Yuseongu, Daejeon, S. Korea
SOURCE: Journal of Colloid and Interface Science (2005), 286(1), 216-223
CODEN: JCISA5; ISSN: 0021-9797
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 25 Apr 2005
AB Dispersions of single-walled C nanotubes in various solvents and aqueous surfactant emulsions were studied to correlate the degree of dispersion state with Hansen solubility parameters (δ2t = δ2d+δ2p+δ2h). The nanotubes were dispersed or suspended very well in the solvents with certain dispersive component (δd) values. They were precipitated in the solvents with high polar component (δp) values or hydrogen-bonding component (δh) values. The solvents in the dispersed group occupied a certain region in a 3-dimensional space of 3 components. The surfactants with a lipophilic group equal to and longer than decyl, containing 9 methylene groups and 1 Me group, contributed to the dispersion of nanotubes in H2O. The surfactants in the dispersed group had a lower limit in the dispersive component (δd) of the Hansen parameter.

IT 25155-30-0, Dodecylbenzene sulfonic acid, sodium salt
(surfactant; explanation of dispersion states of single-walled carbon nanotubes in solvents and aqueous surfactant solns. using solubility parameters)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 66-4 (Surface Chemistry and Colloids)

ST dispersion carbon nanotube
surfactant emulsion soly

IT Nanotubes
(carbon; explanation of dispersion states of single-walled carbon nanotubes in solvents and aqueous surfactant solns. using solubility parameters)

IT Dispersion (of materials)
Solubility
Solvents
Surfactants
(explanation of dispersion states of single-walled carbon nanotubes in solvents and aqueous surfactant solns. using solubility parameters)

IT 7440-44-0, Carbon, properties
(nanotubes; explanation of dispersion states of

single-walled carbon nanotubes in solvents and
aqueous surfactant solns. using solubility parameters)

IT 71-41-0, 1-Pentyl alcohol, properties
(solvent, surfactant; explanation of dispersion states of single-walled carbon nanotubes in solvents and aqueous surfactant solns. using solubility parameters)

IT 64-17-5, Ethanol, properties 67-56-1, Methanol, properties 67-63-0, 2-Propyl alcohol, properties 67-64-1, Acetone, properties 67-66-3, Chloroform, properties 67-68-5, Dimethyl sulfoxide, properties 68-12-2, N,N-Dimethylformamide, properties 71-43-2, Benzene, properties 75-09-2, Dichloromethane, properties 80-62-6, Methyl methacrylate 90-05-1, o-Methoxyphenol 100-42-5, Styrene, properties 107-13-1, Acrylonitrile, properties 108-88-3, Toluene, properties 109-99-9, Tetrahydrofuran, properties 110-54-3, Hexane, properties 872-50-4, 1-Methyl-2-pyrrolidone, properties 7732-18-5, Water, properties
(solvent; explanation of dispersion states of single-walled carbon nanotubes in solvents and aqueous surfactant solns. using solubility parameters)

IT 111-26-2, Hexylamine 111-87-5, 1-Octanol, properties 121-44-8, Triethylamine, properties 124-22-1, Dodecylamine 124-30-1, Octadecylamine 142-31-4, Sodium octyl sulfate 143-27-1, Hexadecylamine 151-21-3, Sodium dodecyl sulfate, properties 1120-04-3, Sodium octadecyl sulfate 1984-06-1 2016-57-1, Decylamine 25155-30-0, Dodecylbenzene sulfonic acid, sodium salt
(surfactant; explanation of dispersion states of single-walled carbon nanotubes in solvents and aqueous surfactant solns. using solubility parameters)

REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 47 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:322510 HCAPLUS Full-text
DOCUMENT NUMBER: 142:366192
TITLE: Method for cut-off of carbon nanotube using surfactant
INVENTOR(S): Sugiyama, Yukihiro; Muneyuki, Hideaki
PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

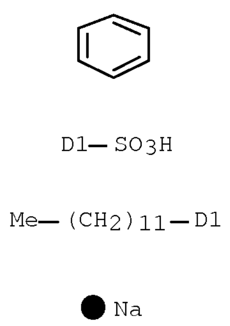
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005095806	A	20050414	JP 2003-334350	20030925
PRIORITY APPLN. INFO.:			JP 2003-334350	20030925

ED Entered STN: 15 Apr 2005

AB The method includes preparation of a liquid containing an ion-surfactant with alkylaryl group (e.g., sodium dodecylbenzenesulfonate) for dispersion of a plurality of carbon nanotubes, cutting the carbon nanotubes in the dispersion liquid by electrophoresis.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(surfactant for cut-off of carbon

nanotube)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



IC ICM B03C005-00
ICS B01D057-02; C01B031-02
CC 78-1 (Inorganic Chemicals and Reactions)
ST carbon nanotube prepn electrophoresis surfactant
IT Nanotubes
(carbon; cut-off method using surfactant)
IT Surfactants
(for cut-off of carbon nanotube)
IT Electrophoresis
(for cut-off of carbon nanotube by using surfactant)
IT 25155-30-0, Sodium dodecylbenzenesulfonate
(surfactant for cut-off of carbon nanotube)

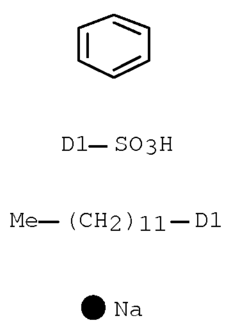
L28 ANSWER 48 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:258654 HCAPLUS Full-text
DOCUMENT NUMBER: 142:323561
TITLE: Dispersion of carbon nanotubes in organic solvents using surfactant- polymer stabilizer
PATENT ASSIGNEE(S): Nanoledge, Fr.
SOURCE: Fr. Demande, 24 pp.
CODEN: FRXXBL
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2859988	A1	20050325	FR 2003-10979	20030918
PRIORITY APPLN. INFO.:			FR 2003-10979	20030918

ED Entered STN: 25 Mar 2005
AB Dispersion of carbon nanotubes in an organic solvent or a mixture of organic solvents is improved by the addition of a stabilizing agent comprising ≥1 surface-active agent, capable of being adsorbed on the surface of the

nanotubes, and ≥1 polymer with an affinity for both the solvent and the aforementioned agent. The surfactant is preferably a steroid such as cholesterol or derivative Aggregation of the nanotubes is prevented. The dispersions are useful in fabrication of polymer/nanotube composites with good elec. conductivity, mech. resistance, mech. strength, storage stability, electrochem. or electromech. energy conversion capacity and/or catalytic activity.

IT 25155-30-0, SDBS
 (surfactant; dispersion of carbon nanotubes in organic solvents using surfactant-polymer stabilizer)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



IC ICM C01B031-00
 ICS B01F003-12; B01F017-00; C08J003-20
CC 66-4 (Surface Chemistry and Colloids)
 Section cross-reference(s): 38, 67, 76
ST dispersion nanotube org solvent stabilizer surfactant polymer
IT Reinforced plastics
 (carbon nanotube-polymer; dispersion of carbon nanotubes in organic solvents using surfactant- polymer stabilizer for)
IT Nanotubes
 (carbon; dispersion of carbon nanotubes in organic solvents using surfactant-polymer stabilizer)
IT Dispersion (of materials)
 Surfactants
 (dispersion of carbon nanotubes in organic solvents using surfactant- polymer stabilizer)
IT 98-11-3, Benzenesulfonic acid, surfactant, uses 151-21-3, SDS, surfactant, uses
 (dispersion of carbon nanotubes in organic solvents using surfactant- polymer stabilizer)
IT 7440-44-0, Carbon, processes
 (nanotubes; dispersion of carbon nanotubes in organic solvents using surfactant-polymer stabilizer)
IT 57-88-5, Cholesterol, uses 81-25-4, Cholic acid 120-18-3, 2-Naphthalenesulfonic acid 361-09-1, Sodium cholate 2718-90-3, Disodium 4,4'-Diazido-2,2'-stilbenedisulfonate 9003-04-7,

Polyacrylic acid, sodium salt 9003-39-8, Polyvinylpyrrolidone
9004-62-0, 2-Hydroxyethylcellulose 25155-30-0, SDBS
34850-66-3, Sodium DL-camphorsulfonate 54193-36-1, Polymethacrylic
acid, sodium salt 718637-95-7, Ethylene-oxirane diblock copolymer
(surfactant; dispersion of carbon
nanotubes in organic solvents using surfactant-
polymer stabilizer)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 49 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:954552 HCAPLUS Full-text

DOCUMENT NUMBER: 143:141635

TITLE: Strain-induced shifts of the photoluminescence of single-walled carbon nanotubes in frozen aqueous dispersions

AUTHOR(S): Arnold, Katharina; Lebedkin, Sergei; Hennrich, Frank; Kappes, Manfred M.

CORPORATE SOURCE: Institut fuer Nanotechnologie, Forschungszentrum Karlsruhe, Karlsruhe, D-76021, Germany

SOURCE: AIP Conference Proceedings (2004), 723(Electronic Properties of Synthetic Nanostructures), 116-120 CODEN: APCPCS; ISSN: 0094-243X

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

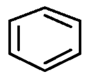
ED Entered STN: 10 Nov 2004

AB Significant shifts of photoluminescence (PL) emission-excitation resonances were observed by freezing and cooling of H2O- surfactant dispersions of single-walled C nanotubes (SWNTs) down to 16 K. The PL resonances correspond to E11S, E22S electronic energies of specific (n,m) nanotubes. The shifts occur mainly in the interval of .apprx.150-200 K, are reversible and similar for SWNT dispersions with different surfactants and viscosity-increasing additives. The sign of the shifts is determined by the (n-m) mod 3 rule, whereas the shift magnitude depends on a chiral angle, being the smallest for the large angles. These results are in agreement with tight-binding model calcns. of Yang et al. for SWNTs under uniaxial compression (apparently caused by thermal contraction of the ice matrix in the authors' case). This indicates a high sensitivity of electronic properties of SWNTs to mech. strain and suggests an extended, 'rod'-like configuration of nanotubes in frozen dispersions.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(strain-induced shifts of photoluminescence of single-walled
carbon nanotubes in frozen aqueous
dispersions)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO_3H

Me— $(CH_2)_{11}$ —D1

● Na

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 65, 66
ST strain shift luminescence walled carbon nanotube frozen dispersion
IT Nanotubes
(carbon; strain-induced shifts of photoluminescence of single-walled carbon nanotubes in frozen aqueous dispersions)
IT Compression
Electronic properties
Luminescence
Resonance state
Strain
Surfactants
(strain-induced shifts of photoluminescence of single-walled carbon nanotubes in frozen aqueous dispersions)
IT Contraction (mechanical)
(thermal; strain-induced shifts of photoluminescence of single-walled carbon nanotubes in frozen aqueous dispersions)
IT 7789-20-0, Water-d2
(frozen; strain-induced shifts of photoluminescence of single-walled carbon nanotubes in frozen aqueous dispersions)
IT 151-21-3, SDS, properties 7440-44-0, Carbon, properties 9003-39-8, Polyvinylpyrrolidone 9004-32-4, Sodium carboxymethylcellulose 25155-30-0, Sodium dodecylbenzenesulfonate
(strain-induced shifts of photoluminescence of single-walled carbon nanotubes in frozen aqueous dispersions)
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 50 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:453123 HCAPLUS Full-text
DOCUMENT NUMBER: 141:30791
TITLE: Fabrication of light emitting semiconductor coated nanoparticles and fullerenes and their application for in-vivo light emission
INVENTOR(S): Barron, Andrew R.; Flood, Dennis J.; Loscutova,

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                              John Ryan
PATENT ASSIGNEE(S):           William Marsh Rice University, USA
SOURCE:                       PCT Int. Appl., 14 pp.
                              CODEN: PIXXD2
DOCUMENT TYPE:                Patent
LANGUAGE:                     English
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE       APPLICATION NO.       DATE
     ---------------     ----   --------   --------------------  --------
     WO 2004046023        A2    20040603   WO 2003-US37188       20031119
     WO 2004046023        A3    20050310
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,
             CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
             GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
             KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
             MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE,
             SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,
             VN, YU, ZA, ZM, ZW
         RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
             AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE,
             DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
             SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
             MR, NE, SN, TD, TG
     AU 2003295721        A1    20040615   AU 2003-295721        20031119
     EP 1563530           A2    20050817   EP 2003-786924        20031119
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
             PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
     US 20060148272       A1    20060706   US 2005-534452        20051101
     US 7253014           B2    20070807
     US 20080171204       A1    20080717   US 2007-834471        20070806
PRIORITY APPLN. INFO.:                     US 2002-427533P    P  20021119

                                           WO 2003-US37188    W  20031119

                                           US 2005-534452     A1 20051101
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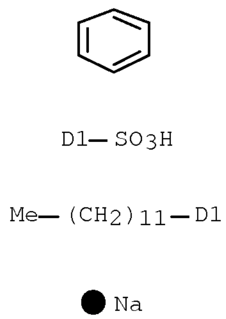
ED   Entered STN: 04 Jun 2004

AB   Methods of making a semiconductor coated nanoparticle comprising a layer of at least one semiconducting material covering at least a portion of at least one surface of the nanoparticle are discussed which entail dispersing the nanoparticle under suitable conditions to provide a dispersed nanoparticle; and depositing at least one semiconducting material under suitable conditions onto at least one surface of the dispersed nanoparticle to produce the semiconductor coated nanoparticle. Semiconductor coated nanoparticles are described which comprise a nanoparticle; and a semiconductor coating, where the semiconductor coating coats at least a portion of the nanoparticle.

IT   25155-30-0, Sodium dodecyl(benzenesulfonate)
(surfactants, dispersion involving; fabrication of semiconductor coated nanoparticles and fullerenes involving nanoparticle dispersion and coating)

RN   25155-30-0 HCAPLUS

CN   Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



IC ICM C01B
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
Section cross-reference(s): 49, 76
ST fabrication semiconductor coated nanoparticle fullerene
dispersion
IT Optical materials
(absorbing; fabrication of semiconductor coated nanoparticles and
fullerenes involving nanoparticle dispersion and coating)
IT Nanotubes
(carbon, nanotubes; fabrication of
semiconductor coated nanoparticles and fullerenes involving
nanoparticle dispersion and coating)
IT Hydroxylation
(dispersion accomplished by; fabrication of semiconductor
coated nanoparticles and fullerenes involving nanoparticle
dispersion and coating)
IT Surfactants
(dispersion involving; fabrication of semiconductor
coated nanoparticles and fullerenes involving nanoparticle
dispersion and coating)
IT Coating materials
Coating process
(dispersion; fabrication of semiconductor coated
nanoparticles and fullerenes involving nanoparticle
dispersion and coating)
IT Dispersion (of materials)
Luminescent substances
Nanoparticles
Semiconductor materials
(fabrication of semiconductor coated nanoparticles and fullerenes
involving nanoparticle dispersion and coating)
IT Fullerenes
(fabrication of semiconductor coated nanoparticles and fullerenes
involving nanoparticle dispersion and coating)
IT Thiols, uses
(organic, capping agent; fabrication of semiconductor coated
nanoparticles and fullerenes involving nanoparticle
dispersion and coating)
IT Liquid crystals
Semiconductor materials
(semiconductor; fabrication of semiconductor coated nanoparticles
and fullerenes involving nanoparticle dispersion and
coating)

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IT   Alkaline earth chalcogenides
     Group IIB element chalcogenides
     Organic compounds, reactions
     Oxides (inorganic), reactions
     Polymers, reactions
        (semiconductor; fabrication of semiconductor coated nanoparticles
        and fullerenes involving nanoparticle dispersion and
        coating)
IT   4671-75-4, n-Tetradecylphosphonic acid
        (capping agent; fabrication of semiconductor coated nanoparticles
        and fullerenes involving nanoparticle dispersion and
        coating)
IT   64-17-5, Ethanol, uses
        (capping agent; fabrication of semiconductor coated nanoparticles
        and fullerenes involving nanoparticle dispersion and
        coating)
IT   1306-23-6P, Cadmium sulfide CdS, properties   1306-24-7P, Cadmium
     selenide CdSe, properties
        (fabrication of semiconductor coated nanoparticles and fullerenes
        involving nanoparticle dispersion and coating)
IT   250698-24-9, Fullerenol 2
        (fabrication of semiconductor coated nanoparticles and fullerenes
        involving nanoparticle dispersion and coating)
IT   112-80-1, Oleic acid, reactions   1306-19-0, Cadmium oxide (CdO),
     reactions   7782-49-2, Selenium, reactions   15853-37-9
        (fabrication of semiconductor coated nanoparticles and fullerenes
        involving nanoparticle dispersion and coating)
IT   1303-00-0, Gallium arsenide (GaAs), uses   1314-98-3, Zinc sulfide
     (ZnS), uses   12024-10-1, Gallium sulfide (GaS)   12063-27-3, Iron
     sulfide (Fe2S3)   13463-67-7, Titanium oxide (TiO2), uses
     22398-80-7, Indium phosphide (InP), uses   99685-96-8, Fullerene (C60)
     135113-16-5, Fullerene C84   136846-62-3, Fullerene C96   141176-39-8,
     Fullerene-C120   147602-38-8, Fullerene C72   147602-39-9, Fullerene
     C108
        (fabrication of semiconductor coated nanoparticles and fullerenes
        involving nanoparticle dispersion and coating)
IT   62-56-6, Thiourea, reactions   102-71-6, Triethanolamine, reactions
     543-90-8, Cadmium acetate   1336-21-6, Ammonium hydroxide ((NH4)(OH))
        (fabrication of semiconductor coated nanoparticles and fullerenes
        involving nanoparticle dispersion and coating using)
IT   7440-44-0, Carbon, properties
        (nanotubes; fabrication of semiconductor coated
        nanoparticles and fullerenes involving nanoparticle
        dispersion and coating)
IT   151-21-3, Sodium dodecyl sulfate, uses   1119-94-4,
     Dodecyltrimethylammonium bromide   20317-32-2 25155-30-0,
     Sodium dodecyl(benzenesulfonate)
        (surfactants, dispersion involving; fabrication
        of semiconductor coated nanoparticles and fullerenes involving
        nanoparticle dispersion and coating)

L28  ANSWER 51 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2004:369541  HCAPLUS  Full-text
DOCUMENT NUMBER:         141:95944
TITLE:                   Evidence of ultrafast optical switching behaviour
                         in individual single-walled carbon
                         nanotubes
AUTHOR(S):               Hippler, H.; Unterreiner, A.-N.; Yang, J.-P.;
                         Lebedkin, S.; Kappes, M. M.
CORPORATE SOURCE:        Lehrstuhl fuer Molekulare Physikalische Chemie,
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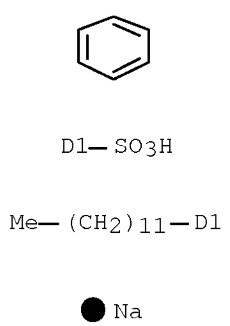
Universitaet Karlsruhe, Karlsruhe, 76128, Germany
SOURCE: Physical Chemistry Chemical Physics (2004), 6(9), 2387-2390
CODEN: PPCPFQ; ISSN: 1463-9076
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 07 May 2004
AB The ultrafast photophysics of D2O/Na dodecylbenzene sulfonate surfactant dispersions of single-walled C nanotubes enriched in individual tubes (vs. tube bundles) were studied by fs pump-probe spectroscopy in the near-IR (NIR) spectral range. Measurements at 920 nm excitation and variable probe wavelengths showed evidence of superimposed transient bleaching as well as induced absorption behavior. Such nanotube samples manifest ultrafast pump-induced switching of probe transmission with switching times of <1 ps under appropriate conditions. Given their high photochem. and photophys. stability these materials may be suitable candidates for the development of ultrafast NIR optical switches and logic gates.
IT 25155-30-0, Sodium dodecylbenzene sulfonate
(evidence of ultrafast optical switching in individual single-walled carbon nanotubes in presence of)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
ST carbon single walled nanotube ultrafast optical switching
IT Nanotubes
(carbon, single-walled; evidence of ultrafast optical switching in individual single-walled)
IT Bleaching
(fluorescent; of individual single-walled carbon nanotubes)
IT IR spectra
(near-IR; of individual single-walled carbon nanotubes)
IT Optical switching
(ultrafast; evidence in individual single-walled carbon nanotubes)
IT 7440-44-0, Carbon, properties
(evidence of ultrafast optical switching in individual

single-walled carbon nanotubes)

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(evidence of ultrafast optical switching in individual single-walled carbon nanotubes in presence of)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 52 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:252434 HCAPLUS Full-text
DOCUMENT NUMBER: 140:276753
TITLE: Carbon nanotubes: high solids dispersions and nematic gels thereof
INVENTOR(S): Yodh, Arjun G.; Islam, Mohammad F.; Ali, Ahmed M. Alsayed
PATENT ASSIGNEE(S): The Trustees of the University Pennsylvania, USA; Islam, Mohammad F
SOURCE: PCT Int. Appl., 76 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2004024428	A1	20040325	WO 2003-US16086		20030521
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
AU 2003251307	A1	20040430	AU 2003-251307		20030521
US 20060115640	A1	20060601	US 2005-145627		20050606
US 20060099135	A1	20060511	US 2005-526941		20050908
PRIORITY APPLN. INFO.:			US 2002-409821P	P	20020910
			US 2002-419882P	P	20021018
			WO 2003-US16086	W	20030521
			US 2004-576940P	P	20040604
			US 2005-526941	A2	20050908

ED Entered STN: 26 Mar 2004

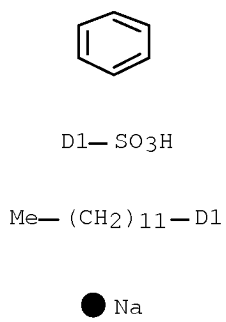
AB Disclosed are high weight fraction C nanotube dispersions including an aqueous medium, C nanotubes, and at least one surfactant, the surfactant having an aromatic group, an alkyl group having from .apprx.4 to .apprx.30 C atoms, and a charged head group. Also disclosed are ultrasonication processes capable of providing stable dispersions of C nanotubes having reduced breakage of the C nanotubes . The preparation of nematic nanotube gels from the C nanotube

dispersions are also disclosed. A variety of uses and applications of the C nanotube dispersions and nematic nanotube gels are provided.

IT 25155-30-0, Sodium dodecylbenzenesulfonate 28348-62-1, Sodium hexadecylbenzenesulfonate 28675-11-8, Sodium octylbenzenesulfonate 33773-60-3, Sodium hexylbenzenesulfonate
(surfactant; carbon nanotube dispersion comprising aqueous medium and at least one surfactant)

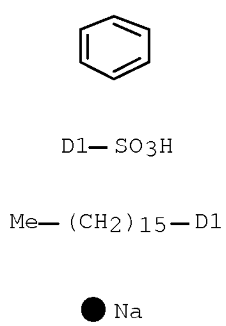
RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



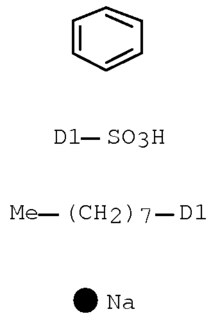
RN 28348-62-1 HCAPLUS

CN Benzenesulfonic acid, hexadecyl-, sodium salt (1:1) (CA INDEX NAME)

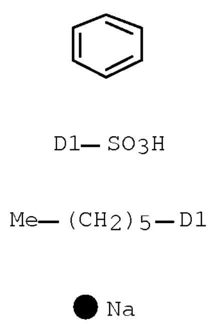


RN 28675-11-8 HCAPLUS

CN Benzenesulfonic acid, octyl-, sodium salt (1:1) (CA INDEX NAME)



RN 33773-60-3 HCAPLUS
CN Benzenesulfonic acid, hexyl-, sodium salt (6CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM B29C071-00
CC 66-4 (Surface Chemistry and Colloids)
ST carbon nanotube solid dispersion;
nematic gel carbon nanotube
IT Self-assembly
(assembly comprising substrate, carbon nanotubes self-assembled onto substrate, and surfactants adsorbed to carbon nanotube surface)
IT Biosensors
Sensors
(assembly comprising substrate, carbon nanotubes self-assembled onto substrate, and surfactants adsorbed to surface of carbon nanotubes for use as)
IT Polymers, uses
(block, solid matrix; composites comprising solid matrix, and carbon nanotubes and surfactant dispersed within solid matrix)
IT Polymers, uses
(branched, solid matrix; composites comprising solid matrix, and carbon nanotubes and surfactant dispersed within solid matrix)
IT Sols
(carbon nanotubes and their high solids

dispersions and nematic gels)

IT Nanofibers
Nanotubes
(carbon; carbon nanotubes and their
high solids dispersions and nematic gels)

IT Nanocomposites
(composites comprising solid matrix, and carbon
nanotubes and surfactant dispersed
within solid matrix)

IT Polymers, uses
(graft, solid matrix; composites comprising solid matrix, and
carbon nanotubes and surfactant
dispersed within solid matrix)

IT Polymers, uses
(linear, solid matrix; composites comprising solid matrix, and
carbon nanotubes and surfactant
dispersed within solid matrix)

IT Gels
(nematic; carbon nanotubes and their high
solids dispersions and nematic gels)

IT 12586-59-3, Proton
(assembly comprising substrate, carbon nanotubes
self-assembled onto substrate, and surfactants adsorbed
to surface of carbon nanotubes for use as
proton sensors)

IT 9003-20-7, Polyvinylacetate 9011-14-7, Pmma 90398-43-9,
n-Isopropyl acrylamide n,n'-methylenebisacrylamide copolymer
100942-95-8, Ethyleneglycol diacrylate methylmethacrylate copolymer
(solid matrix; composites comprising solid matrix, and
carbon nanotubes and surfactant
dispersed within solid matrix)

IT 25155-30-0, Sodium dodecylbenzenesulfonate 28348-62-1
, Sodium hexadecylbenzenesulfonate 28675-11-8, Sodium
octylbenzenesulfonate 33773-60-3, Sodium
hexylbenzenesulfonate
(surfactant; carbon nanotube
dispersion comprising aqueous medium and at least one
surfactant)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

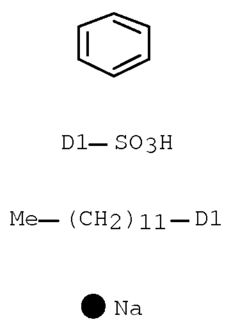
L28 ANSWER 53 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:173136 HCAPLUS Full-text
DOCUMENT NUMBER: 140:391835
TITLE: Nematic Nanotube Gels
AUTHOR(S): Islam, M. F.; Alsayed, A. M.; Dogic, Z.; Zhang, J.; Lubensky, T. C.; Yodh, A. G.
CORPORATE SOURCE: Department of Physics and Astronomy, University of Pennsylvania, Philadelphia, PA, 19104-6396, USA
SOURCE: Physical Review Letters (2004), 92(8), 088303/1-088303/4
CODEN: PRLTAO; ISSN: 0031-9007
PUBLISHER: American Physical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 03 Mar 2004

AB We report the creation of nematic nanotube gels containing large domains of isolated, oriented, half-micron-long, single-wall carbon nanotubes (SWNTs). We make them by homogeneously dispersing surfactant coated SWNTs at low

concentration in an N-iso-Pr acrylamide gel and then inducing a volume-compression transition. These gels exhibit hallmark properties of a nematic: birefringence, anisotropy in optical absorption, and disclination defects. We also study the isotropic-to-nematic transition of these gels, and we describe the phys. properties of their ensuing nematic state, including a novel buckling of sample walls. Finally, we provide a simple model to explain our observations.

IT 25155-30-0
   (surfactant; nematic nanotube filled iso-Pr acrylamide gels)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 37-6 (Plastics Manufacture and Processing)
ST nematic nanotube filled isopropyl acrylamide gel
IT Surfactants
   (anionic; nematic nanotube filled iso-Pr acrylamide gels)
IT Nanotubes
   (carbon; nematic nanotube filled iso-Pr acrylamide gels)
IT Birefringence
   Contraction (mechanical)
   (nematic nanotube filled iso-Pr acrylamide gels)
IT 90398-43-9, N-Isopropyl acrylamide-N,N'-methylenebisacrylamide copolymer
   (nematic nanotube filled iso-Pr acrylamide gels)
IT 25155-30-0
   (surfactant; nematic nanotube filled iso-Pr acrylamide gels)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

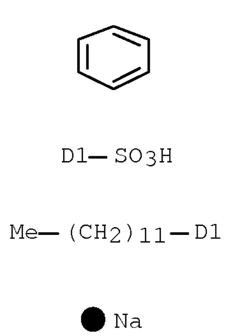
L28 ANSWER 54 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:884694 HCAPLUS Full-text
DOCUMENT NUMBER: 140:61328
TITLE: Dispersion of Single-Walled Carbon Nanotubes in Aqueous Solutions of the Anionic Surfactant NaDDBS
AUTHOR(S): Matarredona, Olga; Rhoads, Heather; Li, Zhongrui; Harwell, Jeffrey H.; Balzano, Leandro; Resasco, Daniel E.

CORPORATE SOURCE: School of Chemical Engineering and Materials Science, University of Oklahoma, Norman, OK, 73019, USA
SOURCE: Journal of Physical Chemistry B (2003), 107(48), 13357-13367
CODEN: JPCBFK; ISSN: 1520-6106
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 12 Nov 2003
AB The insoly. of single-walled carbon nanotubes (SWNT) in either water or organic solvents has been a limitation for the practical application of this unique material. Recent studies have demonstrated that the suspendability of SWNT can be greatly enhanced by employing appropriate surfactants. Although the efficiency of anionic, cationic, and nonionic surfactants has been demonstrated to different extents, the exact mechanism by which carbon nanotubes and the different surfactants interact is still uncertain. To deepen the understanding of this interfacial phenomenon, we have investigated the effects of chemical modifications of the surface on the extent of nanotube-surfactant interaction. Such changes in the surface chemical of the SWNT can be achieved by simply varying the pretreatment method, which can be acidic or basic. We have found that intrinsic surface properties such as the PZC (point of zero charge) are greatly affected by the purification method. That is, the elec. charge of the SWNT surface varies with the pH of the surrounding media. However, it has been found that during the adsorption of the anionic surfactant sodium dodecylbenzenesulfonate (NaDDBS) on SWNT Coulombic forces do not play a central role, but are overcome by the hydrophobic interactions between the surfactant tail and the nanotube walls. Only at pH values far from the PZC do the Coulombic forces become important. The hydrophobic forces between the surfactant tail and the nanotube determine the structure of the surfactant-stabilized nanotubes. In such a structure, each nanotube is covered by a monolayer of surfactant mols. in which the heads form a compact outer surface while the tails remain in contact with the nanotube walls. It is important to note that although the final configuration can be described as a cylindrical micelle with a nanotube in the center, the mechanism of formation of this structure does not proceed by incorporation of a nanotube into a micelle, but rather by a two-step adsorption that ends up in the formation of a surfactant monolayer.

IT 25155-30-0, Sodium dodecyl benzenesulfonate
(dispersion of single-walled carbon nanotubes in aqueous solns. of anionic surfactant sodium dodecyl benzenesulfonate)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



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CC   46-3 (Surface Active Agents and Detergents)
     Section cross-reference(s): 49
ST   dispersion single walled carbon nanotube
     anionic surfactant; sodium dodecyl benzenesulfonate
     surfactant dispersion carbon
     nanotube
IT   Surfactants
        (anionic; dispersion of single-walled carbon
        nanotubes in aqueous solns. of anionic surfactant
        sodium dodecyl benzenesulfonate)
IT   Nanotubes
        (carbon; dispersion of single-walled
        carbon nanotubes in aqueous solns. of anionic
        surfactant sodium dodecyl benzenesulfonate)
IT   Adsorption
       Dispersion (of materials)
     Surface tension
        (dispersion of single-walled carbon
        nanotubes in aqueous solns. of anionic surfactant
        sodium dodecyl benzenesulfonate)
IT   25155-30-0, Sodium dodecyl benzenesulfonate
        (dispersion of single-walled carbon
        nanotubes in aqueous solns. of anionic surfactant
        sodium dodecyl benzenesulfonate)
IT   7440-44-0, Carbon, properties
        (nanotubes; dispersion of single-walled
        carbon nanotubes in aqueous solns. of anionic
        surfactant sodium dodecyl benzenesulfonate)
REFERENCE COUNT:         62    THERE ARE 62 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

L28  ANSWER 55 OF 56  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2003:42489  HCAPLUS  Full-text
DOCUMENT NUMBER:         138:109128
TITLE:                   Manufacture of single-wall carbon
                         nanotube alewives
INVENTOR(S):             Smalley, Richard E.; Saini, Rajesh Kumar;
                         Sivarajan, Ramesh; Hauge, Robert H.; Davis,
                         Virginia A.; Pasquali, Matteo; Ericson, Lars M.;
                         Kumar, Satish; Veedu, Sreekumar Thaliyil
PATENT ASSIGNEE(S):      William Marsh Rice University, USA; Georgia Tech
                         Research Corporation
SOURCE:                  PCT Int. Appl., 31 pp.
                         CODEN: PIXXD2
DOCUMENT TYPE:           Patent
LANGUAGE:                English
FAMILY ACC. NUM. COUNT:  2
PATENT INFORMATION:

     PATENT NO.          KIND   DATE       APPLICATION NO.       DATE
     ---------------     ----   --------   -------------------   --------
     WO 2003004740        A1    20030116   WO 2002-US21254       20020703
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,
             CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,
             GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,
             LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
             NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,
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TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU,
MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG

US 20030133865	A1	20030717	US 2002-187729		20020702
US 7288238	B2	20071030			
AU 2002316568	A1	20030121	AU 2002-316568		20020703
PRIORITY APPLN. INFO.:			US 2001-303469P	P	20010706
			US 2001-303470P	P	20010706
			US 2001-337561P	P	20011108
			US 2001-337951P	P	20011207
			US 2002-187729	A	20020702
			WO 2002-US21254	W	20020703

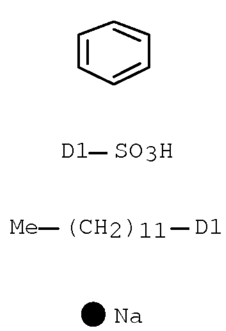
ED Entered STN: 17 Jan 2003

AB The alewives (e.g., discrete, acicular-shaped aggregates of highly aligned single-wall carbon nanotubes) can be conveniently dispersed in materials such as polymers, ceramics, metals, metal oxides and liqs. The process for preparing the alewives comprises mixing single-wall carbon nanotubes with 100% sulfuric acid or a superacid, heating and stirring, and slowly introducing water into the single-wall carbon nanotube/acid mixture to form the alewives. The alewives can be recovered, washed and dried. The properties of the single-wall carbon nanotubes are retained in the alewives.

IT 25155-30-0, Sodium dodecyl benzene sulfonate
(surfactant; manufacture of single-wall carbon nanotube alewives)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



IC ICM D01F009-12

CC 49-1 (Industrial Inorganic Chemicals)

ST carbon nanotube alewife manuf

IT Perfluoro compounds
(alkanesulfonic acids, α,ω-disulfonic acids; in manufacture of single-wall carbon nanotube alewives)

IT Sulfonic acids, reactions
(alkanesulfonic, perfluoro, α,ω-disulfonic acids; in

manufacture of single-wall carbon nanotube alewives)
IT Vehicles
(bodies; manufacture of single-wall carbon nanotube alewives for use in)
IT Explosives
(bombs, components; manufacture of single-wall carbon nanotube alewives for use in)
IT Ceramics
Liquids
(carbon nanotube alewives dispersion in, in manufacture of single-wall carbon nanotube alewives)
IT Oxides (inorganic), miscellaneous
Polymers, miscellaneous
(carbon nanotube alewives dispersion in, in manufacture of single-wall carbon nanotube alewives)
IT Nanotubes
(carbon, single-wall; manufacture of single-wall carbon nanotube alewives)
IT Aircraft
Pressure vessels
(components; manufacture of single-wall carbon nanotube alewives for use in)
IT Weapons
(explosive bombs, components; manufacture of single-wall carbon nanotube alewives for use in)
IT Ships
(hulls; manufacture of single-wall carbon nanotube alewives for use in)
IT Superacids
(in manufacture of single-wall carbon nanotube alewives)
IT Industrial waters
(manufacture of single-wall carbon nanotube alewives)
IT Armor
Electrodes
Heat transfer agents
Heat-resistant materials
Laminated materials
Sensors
Textiles
Thermal insulators
Transducers
(manufacture of single-wall carbon nanotube alewives for use in)
IT Natural fibers
Synthetic fibers
(manufacture of single-wall carbon nanotube alewives for use in)
IT Polyphosphoric acids
(mixts. with oleum; in manufacture of single-wall carbon nanotube alewives)
IT Sulfonic acids, reactions
(perfluoroalkane derivs.; in manufacture of single-wall carbon nanotube alewives)
IT Safety devices
(protective clothing, bullet-proof vest; manufacture of single-wall carbon nanotube alewives for use in)

IT Clothing
(protective, bullet-proof vest; manufacture of single-wall carbon nanotube alewives for use in)
IT Sporting goods
(racquets; surfboards; manufacture of single-wall carbon nanotube alewives for use in)
IT Sporting goods
(skis; manufacture of single-wall carbon nanotube alewives for use in)
IT 354-88-1 355-46-4 375-73-5 1493-13-6, Trifluoromethanesulfonic acid 1763-23-1 2706-91-4 7446-11-9D, Sulfur trioxide, mixture with fluorosulfuric acid, mixture with antimony pentafluoride and fluorosulfuric acid 7446-70-0D, Aluminum chloride, mixture with hydrochloric acid 7601-90-3, Perchloric acid, reactions 7647-01-0D, Hydrochloric acid, mixture with aluminum chloride 7664-39-3D, Hydrofluoric acid, mixture with antimony pentafluoride and fluorosulfuric acid or with boron trifluoride 7664-93-9, Sulfuric acid, reactions 7664-93-9D, Sulfuric acid, mixture with tetra(hydrogen sulfate)boric acid 7727-15-3D, Aluminum bromide, mixture with hydrobromic acid 7783-68-8, Niobium pentafluoride 7783-70-2, Antimony pentafluoride 7783-70-2D, Antimony pentafluoride, mixture with fluorosulfuric acid and hydrofluoric acid or sulfur trioxide 7783-71-3, Tantalum pentafluoride 7783-71-3D, Tantalum pentafluoride, mixture with hydrofluoric acid 7784-36-3, Arsenic pentafluoride 7784-36-3D, Arsenic pentafluoride, mixture with fluorosulfuric acid 7789-21-1, Fluorosulfuric acid 7789-21-1D, Fluorosulfuric acid, mixture with antimony pentafluoride, sulfur trioxide, or arsenic pentafluoride, mixture with antimony pentafluoride and hydrofluoric acid or sulfur trioxide 7790-94-5, Chlorosulfuric acid 8014-95-7, Oleum 10035-10-6D, Hydrobromic acid, mixture with aluminum bromide 72441-89-5 92525-62-7 133201-07-7
(in manufacture of single-wall carbon nanotube alewives)
IT 67-56-1, Methanol, uses
(manufacture of single-wall carbon nanotube alewives)
IT 151-21-3, Sodium dodecyl sulfate, reactions 9002-93-1, Triton X-100 25155-30-0, Sodium dodecyl benzene sulfonate
(surfactant; manufacture of single-wall carbon nanotube alewives)
REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

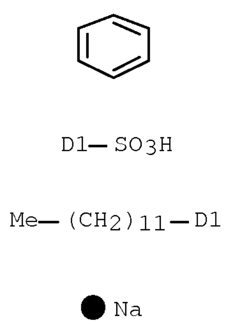
L28 ANSWER 56 OF 56 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:35688 HCAPLUS Full-text
DOCUMENT NUMBER: 138:227379
TITLE: High Weight Fraction Surfactant Solubilization of Single-Wall Carbon Nanotubes in Water
AUTHOR(S): Islam, M. F.; Rojas, E.; Bergey, D. M.; Johnson, A. T.; Yodh, A. G.
CORPORATE SOURCE: Department of Physics and Astronomy, University of Pennsylvania, Philadelphia, PA, 19104-6396, USA
SOURCE: Nano Letters (2003), 3(2), 269-273
CODEN: NALEFD; ISSN: 1530-6984
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 16 Jan 2003

AB The authors report a simple process to solubilize high weight fraction single-wall C nanotubes in H2O by the nonspecific phys. adsorption of Na dodecylbenzene sulfonate. The diameter distribution of nanotubes in the dispersion, measured by atomic force microscopy, showed that even at 20 mg/mL .apprx.63 ± 5% of single-wall C nanotube bundles exfoliated into single tubes. A measure of the length distribution of the nanotubes showed that dispersion technique reduced nanotube fragmentation.

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(high weight fraction surfactant solubilization of single-wall carbon nanotubes in water)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 66-6 (Surface Chemistry and Colloids)
Section cross-reference(s): 6, 63

ST surfactant solubilization carbon nanotube suspension

IT Nanotubes
(carbon; high weight fraction surfactant solubilization of single-wall carbon nanotubes in water)

IT Solubilization
Surfactants
Suspensions
(high weight fraction surfactant solubilization of single-wall carbon nanotubes in water)

IT 151-21-3, Sds, uses 9002-93-1, Triton x100 25155-30-0, Sodium dodecylbenzene sulfonate
(high weight fraction surfactant solubilization of single-wall carbon nanotubes in water)

REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2008:710678 HCAPLUS Full-text
DOCUMENT NUMBER: 149:105921
TITLE: Preparation of chromium nitride-polyaniline nanocomposites
INVENTOR(S): Li, Yaogang; Lu, Yuanyuan; Shi, Guoying; Wang, Hongzhi
PATENT ASSIGNEE(S): Donghua University, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 8pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	CN 101195710	A	20080611	CN 2007-10170879	20071123
PRIORITY APPLN. INFO.:				CN 2007-10170879	20071123

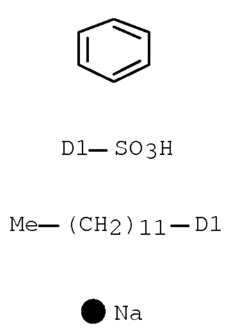
ED Entered STN: 13 Jun 2008

AB The title method comprises the steps of: (1) preparing 1.5 mol/L HCl (a doping agent) solution 100 mL, adding sodium dodecyl benzenesulfonate (a surfactant) into the HCl solution to form emulsion, adding chromium nitride nanoparticles (diams. = 10-100 nm), homogeneously stirring, and ultrasonically dispersing to obtain surface-modified nanoscale chromium nitride suspension, and (2) transferring to a three-necked flask, adding aniline monomer while mech. stirring at 400-800 rpm, dissolving an initiator in deionized water, dropping into the flask while mech. stirring, performing in-situ polymerization at 0 ± 5° for 6-15 h while mech. stirring, vacuum-filtering, orderly washing with deionized water and ethanol, and vacuum-drying for 12 h to obtain the final product. The composite has high compatibility and high dispersibility.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(surface modifier for chromium nitride; preparation of chromium nitride-polyaniline nanocomposites)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 37

IT 25155-30-0, Sodium dodecylbenzenesulfonate

(surface modifier for chromium nitride; preparation of chromium nitride-polyaniline nanocomposites)

L31 ANSWER 2 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2008:507958 HCAPLUS Full-text
DOCUMENT NUMBER: 148:427741
TITLE: Preparation of nanocomposites using virgin or recycled polymers and nanofibers and layered materials
INVENTOR(S): Wypych, Fernando
PATENT ASSIGNEE(S): Universidade Federal do Parana, Brazil
SOURCE: Braz. Pedido PI, 11pp.
CODEN: BPXXDX
DOCUMENT TYPE: Patent
LANGUAGE: Portuguese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
BR 2005005848	A	20070925	BR 2005-5848	20051205
PRIORITY APPLN. INFO.:			BR 2005-5848	20051205

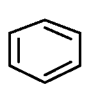
ED Entered STN: 25 Apr 2008

AB The nanocomposites are fabricated using layered double hydroxides of general formula [MII1-xMIIIx(OH)2][An]x/n.zH2O, where An is a surfactant anion; MII is Mg, Ca, Sr, Mn, Fe, Co, Ni, Cu, Zn; MIII is Al, Cr, Fe; x = 0.1-0.5; and a mixture of MII/MIII is Fe, Co, Ni. The nanocomposites also comprise nanofibers, i.e., white asbestos (Mg3Si2O5(OH)4), fibrous brucite (Mg(OH)2), imogolite (Al2SiO3(OH)4), cellulose nanofibers, and natural and synthetic fibers and natural and synthetic polymers, virgin or recycled. The layered double hydroxides and the nanofibers are subjected to surface treatment to promote well mixing and dispersion in the polymer; the compatibilizers are surfactants for exfoliation of the layered double hydroxides, e.g., sodium doedecyl sulfate, sodium dodecylbenzene sulfonate, alkali metal carboxylates, ammonium carboxylates, silanes, phosphonates, and C>3 carboxylic acids. The nanocomposites have a variety of potential uses.

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(nanocomposites based on virgin or recycled polymers and natural and synthetic inorg. nanofibers and double layered hydroxides)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



D1— SO_3H

Me— $(CH_2)_{11}$ —D1

● Na

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CC   37-6 (Plastics Manufacture and Processing)
     Section cross-reference(s): 49
ST   layered double hydroxide mineral nanofiber polymer
     nanocomposite compn
IT   Carboxylic acids, uses
        (C>3; nanocomposites based on virgin or recycled polymers and
        natural and synthetic inorg. nanofibers and double
        layered hydroxides)
IT   Carboxylic acids, uses
        (alkali metal salts; nanocomposites based on virgin or recycled
        polymers and natural and synthetic inorg. nanofibers and
        double layered hydroxides)
IT   Carboxylic acids, uses
        (ammonium salts; nanocomposites based on virgin or recycled
        polymers and natural and synthetic inorg. nanofibers and
        double layered hydroxides)
IT   Synthetic fibers
        (mineral; nanocomposites based on virgin or recycled polymers and
        natural and synthetic inorg. nanofibers and double
        layered hydroxides)
IT   Coupling agents
     Exfoliation
     Nanocomposites
       Nanofibers
        (nanocomposites based on virgin or recycled polymers and natural
        and synthetic inorg. nanofibers and double layered
        hydroxides)
IT   Asbestos
     Chrysotile asbestos
     Layered double hydroxides
     Mineral fibers
     Natural fibers
     Phosphonates
     Silanes
     Synthetic fibers
        (nanocomposites based on virgin or recycled polymers and natural
        and synthetic inorg. nanofibers and double layered
        hydroxides)
IT   Polymers, uses
        (nanocomposites based on virgin or recycled polymers and natural
        and synthetic inorg. nanofibers and double layered
        hydroxides)
IT   Mineral fibers
        (synthetic; nanocomposites based on virgin or recycled polymers and
        natural and synthetic inorg. nanofibers and double
        layered hydroxides)
IT   151-21-3, Sodium dodecyl sulfate, uses   1317-43-7, Brucite
     9004-34-6, Cellulose, uses   12263-43-3, Imogolite 25155-30-0
     , Sodium dodecylbenzene sulfonate
        (nanocomposites based on virgin or recycled polymers and natural
        and synthetic inorg. nanofibers and double layered
        hydroxides)

L31  ANSWER 3 OF 16  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2007:850640  HCAPLUS  Full-text
DOCUMENT NUMBER:         147:237818
TITLE:                   Apparent grain size controllable ultrafine ultra-
                         dispersed diamond micropowder and
                         preparation method therefor
```

INVENTOR(S): Pang, Haiyan; Wang, Jing
PATENT ASSIGNEE(S): Henan Union Abrasives Corp., Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 11pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	CN 101007252	A	20070801	CN 2006-10017374	20060124
PRIORITY APPLN. INFO.:				CN 2006-10017374	20060124

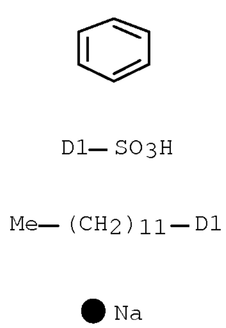
ED Entered STN: 06 Aug 2007

AB The ultra-fine ultra-dispersed diamond micropowder has apparent grain size of 50-500 nm, zeta potential absolute value ≥35 mV when dispersed in water, and can stably disperse in water or linear alkane and keep dispersion state for 10-20 days. The preparation method comprises treating detonation synthesized nano diamond via wet type chemical process to remove graphite and other impurities; preparing 2-10% nano diamond suspension liquid, adding surfactant, ultrasonic dispersing, grain sizing classifying via gravity settling or centrifugal separation, washing with organic solvent, drying at temperature of ≤80° and normal pressure or vacuum drying to obtain product.

IT 25155-30-0, Sodium dodecyl benzene sulfonate
(apparent grain size controllable ultrafine ultra-dispersed diamond micropowder and preparation method therefor)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 49-1 (Industrial Inorganic Chemicals)
Section cross-reference(s): 57

ST grain size control ultrafine ultra dispersed diamond micropowder

IT Nanoparticles
Surfactants
(apparent grain size controllable ultrafine ultra-dispersed diamond micropowder and preparation method therefor)

IT Polyoxyalkylenes, uses
(apparent grain size controllable ultrafine ultra-dispersed diamond micropowder and preparation method therefor)

IT Fatty acids, uses
(esters, allyl esters, sodium sulfonate, stabilizing agent;

apparent grain size controllable ultrafine ultra-dispersed diamond micropowder and preparation method therefor)

IT Powders
(micropowders; apparent grain size controllable ultrafine ultra-dispersed diamond micropowder and preparation method therefor)

IT Particle size
(nanoscale; apparent grain size controllable ultrafine ultra-dispersed diamond micropowder and preparation method therefor)

IT Dispersion (of materials)
(ultrasound; apparent grain size controllable ultrafine ultra-dispersed diamond micropowder and preparation method therefor)

IT 120-40-1, Lauroyl diethanolamine 142-86-9 143-19-1, Sodium oleate 1120-04-3, Sodium octadecyl sulfate 1338-39-2, Sorbitan monolaurate 1338-41-6, Sorbitan monostearate 2717-15-9, Triethanolamine oleate 9005-66-7 25155-30-0, Sodium dodecyl benzene sulfonate 29894-35-7, Polyglycerol polyricinoleate 39301-61-6 210589-08-5
(apparent grain size controllable ultrafine ultra-dispersed diamond micropowder and preparation method therefor)

IT 7601-90-3, Perchloric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses
(apparent grain size controllable ultrafine ultra-dispersed diamond micropowder and preparation method therefor)

IT 9002-89-5, Polyvinyl alcohol 9003-04-7, Sodium polyacrylate 9003-05-8, Polyacrylamide 25322-68-3, Polyethylene glycol
(stabilizing agent; apparent grain size controllable ultrafine ultra-dispersed diamond micropowder and preparation method therefor)

L31 ANSWER 4 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN

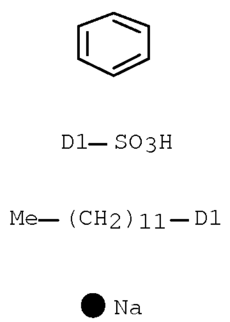
ACCESSION NUMBER: 2007:569330 HCAPLUS Full-text
DOCUMENT NUMBER: 147:77131
TITLE: Method for coating nano-films of titanium dioxide on fluorescent powder surface of zinc sulfide
INVENTOR(S): Yuan, Jiongliang
PATENT ASSIGNEE(S): Beijing University of Chemical Technology, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 5pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1966763	A	20070523	CN 2005-10115294	20051116
PRIORITY APPLN. INFO.:			CN 2005-10115294	20051116

ED Entered STN: 28 May 2007

AB The title method comprises the steps of: (1) dissolving tetraisopropyl titanate (as precursor) in glacial acetic acid, and adding distilled water under stirring to obtain titanium dioxide hydrate sol, (2) dispersing fluorescent powder of zinc sulfide in distilled water or ethanol, and adding anion surfactant to obtain fluorescent powder suspension, (3) slowly adding titanium dioxide hydrate sol into the fluorescent powder suspension, and stirring, and (4) separating the reaction product, washing, drying, and calcining to obtain fluorescent powder with titanium dioxide films coated on surface. The obtained films have the advantages of high uniformity and high continuity.

IT 25155-30-0, Sodium dodecyl benzene sulfonate
(surfactant; method for coating nano-films of titanium dioxide on fluorescent powder surface of zinc sulfide)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 57
IT Coating materials
Fluorescent substances
Nanostructured materials
(method for coating nano-films of titanium dioxide on fluorescent powder surface of zinc sulfide)
IT 151-21-3, Sodium dodecyl sulfate, uses 25155-30-0, Sodium dodecyl benzene sulfonate
(surfactant; method for coating nano-films of titanium dioxide on fluorescent powder surface of zinc sulfide)

L31 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER:	2007:491653 HCAPLUS Full-text
DOCUMENT NUMBER:	147:347941
TITLE:	A study for synthesis of nanobelt and nanowire nickel powders by wet chemical method
AUTHOR(S):	Jeon, Seung Yup; Chae, Eun-Ju; Lee, Won-Ki; Lee, Gun-Dae; Hong, Seong-Soo; Yoon, Seog-Young; Park, Seong Soo
CORPORATE SOURCE:	Division of Applied Chemical Engineering, Pukyong National University, Pusan, 608-739, S. Korea
SOURCE:	Materials Science Forum (2007), 544-545(Eco-Materials Processing and Design VIII), 83-86 CODEN: MSFOEP; ISSN: 0255-5476
PUBLISHER:	Trans Tech Publications Ltd.
DOCUMENT TYPE:	Journal
LANGUAGE:	English

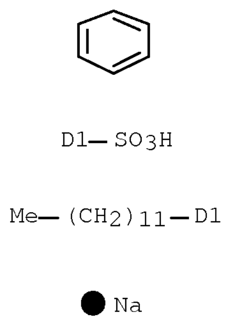
ED Entered STN: 07 May 2007
AB Ni nanosheet has been prepared at various temperature and time with anion surfactant by chemical reduction of the nickel ion complexes formed from complexing reagent in a pressurized vessel. Sample was characterized by the means of an X-ray diffractomer (XRD), a field emission SEM (FESEM), an energy dispersive X-ray spectrometer (EDS), a selected-area electron diffraction

(SAED) and a high sensitive magnetometer (HSM). The use of SDBS and sodium tartrate could be a key factor for the formation and growth of Ni nanosheet.

IT 25155-30-0, Sodium dodecyl benzenesulfonate
(study for synthesis of nanobelt and nanowire nickel powders by wet chemical method)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 56-4 (Nonferrous Metals and Alloys)

ST wet chem method nanobelt nanowire nickel powder synthesis

IT Nanostructures
(nanobelts; study for synthesis of nanobelt and nanowire nickel powders by wet chemical method)

IT Coercive force (magnetic)
Magnetization
Nanowires
(study for synthesis of nanobelt and nanowire nickel powders by wet chemical method)

IT 7440-02-0P, Nickel, preparation
(study for synthesis of nanobelt and nanowire nickel powders by wet chemical method)

IT 7803-57-8, Hydrazine hydrate 14475-11-7, Sodium tartrate 25155-30-0, Sodium dodecyl benzenesulfonate
(study for synthesis of nanobelt and nanowire nickel powders by wet chemical method)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 6 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1155479 HCAPLUS Full-text

DOCUMENT NUMBER: 145:456516

TITLE: Preparation method and application of nanocrystalline cellulose powder dispersible in non-aqueous solvent

INVENTOR(S): Ding, Enyong; Li, Weidong

PATENT ASSIGNEE(S): Guangzhou Institute of Chemistry, Chinese Academy of Sciences, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 5pp. CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1709913	A	20051221	CN 2005-10035599	20050630
PRIORITY APPLN. INFO.:			CN 2005-10035599	20050630

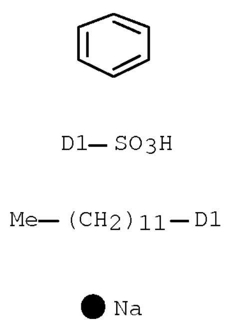
ED Entered STN: 03 Nov 2006

AB The title preparation method comprises uniformly dispersing 30-50 nm nanocryst. cellulose in water, adding hydrophilic low-mol. surfactant (such as sodium dodecane sulfonate, etc.) 0.1-3% by net weight of nanocryst. cellulose, and drying at 105-120° to obtain the final product. The method of application includes mixing the aforementioned powder with non-aqueous solvent (such as DMF, etc.) at ratio of 1:(5-20), and ultrasonically dispersing to nanoscale.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(preparation of nanocryst. cellulose powder dispersible in non-aqueous solvent)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



IC ICM C08B015-08
ICS C08J003-09

CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)

ST nanocryst cellulose powder dispersion nonaq solvent

IT Surfactants
(preparation of nanocryst. cellulose powder dispersible in non-aqueous solvent)

IT Polyoxyalkylenes, uses
(preparation of nanocryst. cellulose powder dispersible in non-aqueous solvent)

IT 127-19-5, Dimethylacetamide
(preparation method and application of nanocryst. cellulose powder dispersible in non-aqueous solvent)

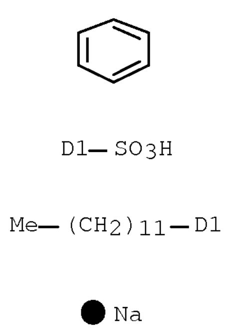
IT 68-12-2, Dimethylformamide, uses 1338-43-8, Span-80 2386-53-0, Sodium dodecylsulfonate 25155-30-0, Sodium dodecylbenzenesulfonate 25322-68-3, Polyethylene glycol 60544-40-3, Dimethylpyrrolidone 153301-99-6, OP 10
(preparation of nanocryst. cellulose powder dispersible in non-aqueous solvent)

IT 9004-34-6, Cellulose, processes
(preparation of nanocryst. cellulose powder dispersible in non-aqueous solvent)

L31 ANSWER 7 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:1130937 HCAPLUS Full-text
DOCUMENT NUMBER: 145:459131
TITLE: Method for preparing chrysotile nanofiber
INVENTOR(S): Feng, Qiming; Liu, Kun; Yang, Yanxia; Zhang, Guofan; Ou, Leming; Lu, Yiping
PATENT ASSIGNEE(S): Central South University, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 8pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1850675	A	20061025	CN 2006-10031635	20060511
PRIORITY APPLN. INFO.:			CN 2006-10031635	20060511

ED Entered STN: 30 Oct 2006
AB The title method comprises purifying raw material of chrysotile or chrysotile tailings by water washing, mixing with anionic surfactant (such as sodium dodecyl benzene sulfonate, etc.) and water to make the surfactant concentration in the system larger than critical micelle concentration and the quantity of surfactant in the system larger than the quantity required for forming saturation adsorption on chrysotile surface, soaking, dispersing by stirring at 3,000-6,000 rpm, centrifuging at 3,000-6,000 rpm, subjecting the obtained supernatant to liquid-solid separation, washing, and drying to obtain chrysotile fiber with diameter of 30-60 nm and length of 10 µm. The invention has the advantages of high purity and good crystallinity of the product, simple process, and convenient operation.
IT 25155-30-0, Sodium dodecyl benzene sulfonate
(method for preparing chrysotile nanofiber)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 57-9 (Ceramics)
Section cross-reference(s): 58
ST chrysotile nanofiber prepn
IT Nanofibers
(method for preparing chrysotile nanofiber)
IT 577-11-7, Sodium bis(2-ethylhexyl) sulfosuccinate 2386-53-0, Sodium

dodecyl sulfonate 25155-30-0, Sodium dodecyl benzene sulfonate
(method for preparing chrysotile nanofiber)

IT 12001-29-5, Chrysotile
(method for preparing chrysotile nanofiber)

L31 ANSWER 8 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:644541 HCAPLUS Full-text
DOCUMENT NUMBER: 145:170012
TITLE: Preparation process for nano manganese dioxide with homogeneous dispersion in water phase and application
INVENTOR(S): Chen, Jianding; Lu, Quanxi; Yu, Dinghua; Ma, Xinsheng; Zhang, Yinyan
PATENT ASSIGNEE(S): East China University of Science and Technology, Peop. Rep. China; Shanghai Huaming Hi-Tech (Group) Co., Ltd.
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7 pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1792820	A	20060628	CN 2005-10111139	20051205
PRIORITY APPLN. INFO.:			CN 2005-10111139	20051205

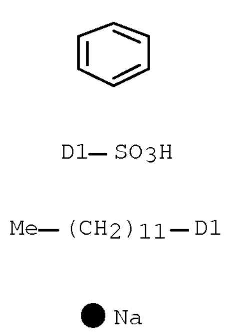
ED Entered STN: 05 Jul 2006

AB The preparation process comprises the following steps of (1) adding surfactant in 1-2 mol/L $MnCl_2$ aqueous solution to obtain its 4-12 mmol/L solution A; (2) adding 0.1-0.5 mol/L $KMnO_4$ aqueous solution to solution A at 70-90° under 200-500 rpm of stirring speed, controlling nMn7+ :nMn2- + = 1:1-2 to react for 2-6 h, filtering, washing, vacuum-drying at 50-100°, and grinding to obtain nano MnO_2 powder. The surface is from sodium dodecyl benzene sulfonate or dodecyl sodium sulfonate. The product can be used as conducting polymer/nano MnO_2 elec. pole composite material, or as elec. pole material independently.

IT 25155-30-0, Sodium dodecyl benzene sulfonate
(for preparation of nano manganese dioxide)

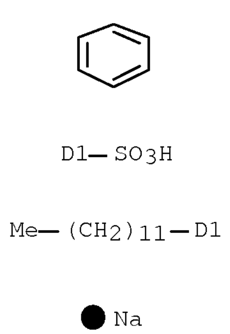
RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 49-3 (Industrial Inorganic Chemicals)
ST manganese dioxide dispersion prepn nanomaterial
IT Dispersion (of materials)
Grinding (size reduction)
(for preparation of nano manganese dioxide)
IT Materials
Nanostructures
(nanomaterials; preparation of nano manganese dioxide)
IT 2386-53-0, Dodecyl sodium sulfonate 25155-30-0, Sodium dodecyl benzene sulfonate
(for preparation of nano manganese dioxide)

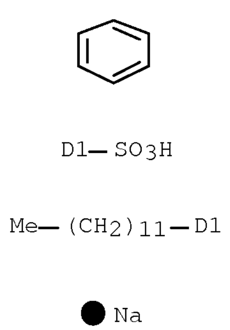
L31 ANSWER 9 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:1271201 HCAPLUS Full-text
DOCUMENT NUMBER: 144:358464
TITLE: Synthesis of amorphous MoS_2 nanospheres by hydrothermal reaction
AUTHOR(S): Tian, Yumei; Zhao, Xu; Shen, Lianchun; Meng, Fanyu; Tang, Lanqin; Deng, Yanhui; Wang, Zichen
CORPORATE SOURCE: College of Chemistry, Jilin University, Changchun, 130023, Peop. Rep. China
SOURCE: Materials Letters (2006), 60(4), 527-529
CODEN: MLETDJ; ISSN: 0167-577X
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 05 Dec 2005
AB Amorphous MoS_2 nanospheres were successfully prepared through a facile and an inexpensive process. The microstructures and chemical compns. of the as-obtained samples were studied by x-ray diffraction, TEM equipped with an energy-dispersive x-ray spectrometer (EDS). The as-prepared materials display nanospheres morphol. with mean diams. of 30 nm. The possible reaction route, the influence of surfactant on the formation of MoS_2 morphol., the different pH values of the solution on preparation of pure amorphous MoS_2 and the reaction temperature on the size of MoS_2 were discussed.
IT 25155-30-0, DBS
(preparation of amorphous MoS nanospheres by hydrothermal reaction)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 66-4 (Surface Chemistry and Colloids)
IT Particle size
(nanoscale; preparation of amorphous MoS_2 nanospheres by

hydrothermal reaction)
IT Nanostructures
Spheres
(nanospheres; preparation of amorphous MoS2 nanospheres by hydrothermal reaction)
IT 25155-30-0, DBS
(preparation of amorphous MoS nanospheres by hydrothermal reaction)
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:968725 HCAPLUS Full-text
DOCUMENT NUMBER: 143:98082
TITLE: Study on preparation and properties of PA6/expanded graphite nanocomposites
AUTHOR(S): Mu, Yan
CORPORATE SOURCE: Ningxia Baota Petrochemical Design and Research Institute, Yinchuan, 750002, Peop. Rep. China
SOURCE: Ningxia Shiyou Huagong (2004), 23(3), 20-24
CODEN: NSHICQ; ISSN: 1672-3058
PUBLISHER: Ningxia Shiyou Huagong Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
ED Entered STN: 15 Nov 2004
AB Sodium dodecylbenzenesulfonate (NaDDBS) as coupling agent was used in the surface treatment of expanded graphite to improve the interfacial interaction between graphite and polymer matrix, and dispersion of graphite with elec. conductivity in matrix polyamide 6 was performed by in-situ polymerization of casting method, PA6/EP nanocomposite which has good comprehensive performance, such as mechanic property, elec. conductivity, was prepared in this paper. The mechanic property, elec. conductivity, nanostructure, elec. conductivity mechanism, intensification mechanism were studied by testing properties, XRD and OM. Mechanic property and elec. conductivity are improved by filling graphite graphite is beneficial to the layer to put the proceeding to reunite the reaction.
IT 25155-30-0, Sodium dodecylbenzenesulfonate
(preparation and properties of PA6/expanded graphite nanocomposites)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 37-6 (Plastics Manufacture and Processing)
IT Breaking strength

```
     Electric resistance
     Nanocomposites
       Surfactants
        (preparation and properties of PA6/expanded graphite nanocomposites)
IT   25155-30-0, Sodium dodecylbenzenesulfonate
        (preparation and properties of PA6/expanded graphite nanocomposites)

L31  ANSWER 11 OF 16  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2003:897347  HCAPLUS  Full-text
DOCUMENT NUMBER:          140:100137
TITLE:                    Size-Controlled Synthesis and Growth Mechanism of
                          Monodisperse Tellurium Nanorods by a
                          Surfactant-Assisted Method
AUTHOR(S):                Liu, Zhaoping; Hu, Zhaokang; Liang, Jianbo; Li,
                          Shu; Yang, You; Peng, Sheng; Qian, Yitai
CORPORATE SOURCE:         Structure Research Laboratory and Department of
                          Chemistry, University of Science and Technology of
                          China, Hefei, Anhui, 230026, Peop. Rep. China
SOURCE:                   Langmuir (2004), 20(1), 214-218
                          CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER:                American Chemical Society
DOCUMENT TYPE:            Journal
LANGUAGE:                 English
ED   Entered STN:  18 Nov 2003
AB    This article describes a surfactant-assisted approach to the size-controlled
      synthesis of uniform nanorods of trigonal tellurium (t-Te).  These nanorods
      were grown from a colloidal dispersion of amorphous Te (a-Te) and t-Te
      nanoparticles at room temperature, which was first formed through the
      reduction of (NH4)2TeS4 by Na2SO3 in aqueous solution at 80 °C.  Nuclei formed
      in the reduction process had a strong tendency to grow along the [001]
      direction due to the inherently anisotropic structure of t-Te.  The formation
      of Te nanorods could be ascribed to the confined growth through the surfactant
      adsorbing on the surfaces of the growing Te particles.  By employing various
      surfactants in the synthesis system, Te nanorods with well-controlled diams.
      and lengths could be reproducibly produced by this method. Both the diams. and
      lengths of nanorods decreased with the increase of the alkyl length and the
      polarity of the surfactants.  Te nanorods could also be obtained in mixed
      surfactants, where the different surfactants were used to selectively control
      the growth rates of different crystal planes.  We also observed that the as-
      synthesized nanorods with uniform size could be self-assembled into large-area
      smecticlike arrays.
IT   25155-30-0, Sodium dodecyl benzenesulfonate
        (surfactant; size-controlled synthesis of monodisperse
        tellurium nanorods by surfactant-assisted
        method)
RN   25155-30-0  HCAPLUS
CN   Benzenesulfonic acid, dodecyl-, sodium salt (1:1)  (CA INDEX NAME)
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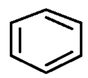


D1— SO_3H

Me— $(CH_2)_{11}$ —D1

● Na

CC 66-6 (Surface Chemistry and Colloids)
Section cross-reference(s): 78
ST size controlled synthesis monodisperse tellurium nanorod nanostructure surfactant
IT Nanostructures
(nanorod; size-controlled synthesis of monodisperse tellurium nanorods by surfactant-assisted method)
IT Microstructure
(of monodisperse tellurium nanorods synthesized by surfactant-assisted method)
IT 13494-80-9P, Tellurium, properties
(nanorod; size-controlled synthesis of monodisperse tellurium nanorods by surfactant-assisted method)
IT 151-21-3, Sodium dodecyl sulfate, uses 629-25-4, Sodium laurate 822-16-2, Sodium stearate 9003-39-8 25155-30-0, Sodium dodecyl benzenesulfonate
(surfactant; size-controlled synthesis of monodisperse tellurium nanorods by surfactant-assisted method)
REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:865822 HCAPLUS Full-text
DOCUMENT NUMBER: 137:326528
TITLE: Antibiotic and antiaggregating nanoscale silver-containing yarns and production process therefor
INVENTOR(S): Zhu, Hongjun
PATENT ASSIGNEE(S): Zhu, Li, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 15 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1322874	A	20011121	CN 2001-115422	20010425

PRIORITY APPLN. INFO.: CN 2001-115422 20010425

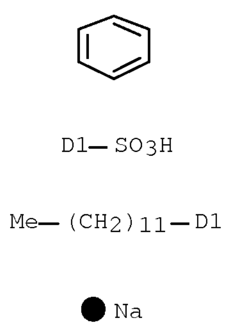
ED Entered STN: 15 Nov 2002

AB The title yarns, can be used as antibiotic medical goods or fabrics, contain nanoscale Ag-based particles firmly adhered between fibrils or upon the surface of yarns made of natural animal or plant fabrics, wherein the particles have average particle size 1-100 nm, AgO of 2-8 nm on the shell, and elemental Ag as core. Thus, mixing 10 parts aqueous containing solution $AgNO_3$ 0.3 M, $NH_3 \cdot H_2O$ 0.15 M, and NaOH 0.1 M in 50 L water, with 1 part solution containing glucose 4 M and HNO_3 0.1 M in 5 L ethanol gave a impregnating liquid, which was used to impregnating 10 kg yarn in the presence of dispersing agent (OP 10) to give title yarn.

IT 25155-30-0, Sodium dodecyl benzenesulfonate
(dispersing agent; antiaggregating silver-based nanoscale particles for preparation of antibiotic yarns)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



IC ICM D06M011-83
ICS D02G003-44

CC 40-9 (Textiles and Fibers)
Section cross-reference(s): 63

ST silver antiaggregating nanoscale particle antibiotic yarn prepn

IT Yarns
(cellulosic; preparation of antibiotic yarns using antiaggregating silver-based nanoscale particles for finishing)

IT Yarns
(cotton; preparation of antibiotic yarns using antiaggregating silver-based nanoscale particles for finishing)

IT Impregnation
(for preparation of antibiotic yarns using antiaggregating silver-based nanoscale particles for finishing)

IT 50-99-7, Glucose, uses
(antiaggregating silver-based nanoscale particles for preparation of antibiotic yarns)

IT 7761-88-8, Silver nitrate, uses
(antibiotic agent; antiaggregating silver-based nanoscale particles for preparation of antibiotic yarns)

IT 62624-30-0, Ascorbic acid
(antibiotic agent; antiaggregating silver-based nanoscale particles for preparation of antibiotic yarns)

IT 25155-30-0, Sodium dodecyl benzenesulfonate 153301-99-6,

OP-10 (Chinese surfactant)
(dispersing agent; antiaggregating silver-based nanoscale particles for preparation of antibiotic yarns)

L31 ANSWER 13 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:736489 HCAPLUS Full-text
DOCUMENT NUMBER: 137:244302
TITLE: Processes for producing coated magnetic microparticles and uses thereof
INVENTOR(S): Chen, Depu; Cheng, Jing; Fei, Weiyang; Sun, Baoquan; Xie, Xin; Zhang, Xu; Zhou, Yuriang
PATENT ASSIGNEE(S): Aviva Biosciences Corporation, USA
SOURCE: PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2002075309	A1	20020926	WO 2002-US8798		20020320
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
CN 1375507	A	20021023	CN 2001-109870		20010320
AU 2002306807	A1	20021003	AU 2002-306807		20020320
EP 1381861	A1	20040121	EP 2002-753678		20020320
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR					
JP 2004528550	T	20040916	JP 2002-573671		20020320
US 20050009002	A1	20050113	US 2004-472663		20040903
PRIORITY APPLN. INFO.:			CN 2001-109870	A	20010320
			WO 2002-US8798	W	20020320

ED Entered STN: 27 Sep 2002

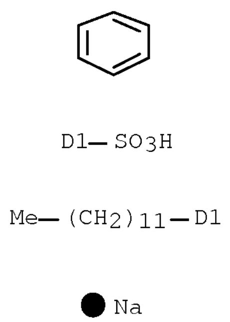
AB This invention relates generally to the field of production of coated magnetizable microparticles and uses thereof. In particular, the invention provides a process for producing coated magnetizable microparticles with active functional groups which process uses, inter alia, conducting polymerization of said coating monomers on the surface of magnetic particles to form coated magnetizable microparticles with active functional groups in the presence of a coupling agent, coating monomers, a functionalization reagent, a crosslinking agent and an initiator in an organic solvent containing a surfactant. The coated magnetizable microparticles produced according to the present processes and uses of the coated magnetizable microparticles, e.g., in isolating and/or manipulating various moieties are also provided. Superparamagnetic Fe_3O_4 nanocrystals were added to toluene and sodium dodecyl benzene sulfonate and dispersed by ultrasound and agitation. A mixture of 0.227g 2,2'- azobisisobutyronitrile, 2.2 mL monomer pentaerythritol trimethacrylate, 1.5 mL crosslinking trimethylpropane trimethacrylate, 0.4 mL coupling agent bis(2-hydroxyethylmethacrylate) phosphate and 1.8 mL

functionalized agent glycidyl acrylate was added into the flask. The mixture was stirred violently for 30 min under purging with a stream of nitrogen. Then the stirring velocity was lowered to 30 rpm, and the reaction temperature was raised to 76° and maintained for 12 h under nitrogen atmospheric The coated microbeads were washed and treated with bovine serum albumin before reaction with antibodies to human IgG to make an immunoassay reagent.

IT 25155-30-0, Sodium dodecylbenzene sulfonate
(processes for producing coated magnetic microparticles and uses thereof)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



IC ICM G01N033-53
ICS G01N033-553; G01N033-543

CC 9-14 (Biochemical Methods)
Section cross-reference(s): 15, 42

ST coated magnetic microparticle prodn sepn; superparamagnetic nanocrystal coating pentaerythritol trimethacrylate epoxy functionalization; immunoassay reagent coated superparamagnetic nanocrystal IgG

IT Surfactants
(anionic; processes for producing coated magnetic microparticles and uses thereof)

IT Surfactants
(cationic; processes for producing coated magnetic microparticles and uses thereof)

IT Surfactants
(nonionic; processes for producing coated magnetic microparticles and uses thereof)

IT Aggregates
Bottles
Coating materials
Coating process
Coupling agents
Crosslinking agents
Cylinders
Ferrimagnetic materials
Ferromagnetic materials
Filtration
Fluorescence immunoassay
Functional groups
Gases
Heat

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     Human
     Magnetic separation
     Membrane filters
     Microarray technology
     Microtiter plates
       Nanocrystals
     Paramagnetic materials
     Polymerization
     Polymerization catalysts
       Surfactants
     Test kits
     Test tubes
     Washing
        (processes for producing coated magnetic microparticles and uses
        thereof)
IT   64-17-5, Ethanol, uses   108-88-3, Toluene, uses   109-99-9,
     Tetrahydrofuran, uses   1330-20-7, Dimethylbenzene, uses   2386-53-0,
     Dodecylsulfonic acid sodium salt   7440-37-1, Argon, uses   7440-59-7,
     Helium, uses   7727-37-9, Nitrogen, uses   9004-78-8D, alkyl derivs.
     25155-30-0, Sodium dodecylbenzene sulfonate
        (processes for producing coated magnetic microparticles and uses
        thereof)
IT   461426-22-2P   461426-23-3P   461426-24-4P   461426-25-5P
     461426-26-6P
        (superparamagnetic nanocrystals coated with; processes
        for producing coated magnetic microparticles and uses thereof)
REFERENCE COUNT:         7     THERE ARE 7 CITED REFERENCES AVAILABLE FOR
                               THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                               RE FORMAT

L31  ANSWER 14 OF 16  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:        2002:67543  HCAPLUS  Full-text
DOCUMENT NUMBER:         136:327664
TITLE:                   Effect of peptization on nanosized TiO2 particles
                         prepared by hydrolysis from metatitanic acid
AUTHOR(S):               Zhang, R. B.; Gao, L.
CORPORATE SOURCE:        State Key Laboratory of High Performance Ceramics
                         and Superfine Microstructure, Shanghai Institute
                         of Ceramics, Chinese Academy of Sciences,
                         Shanghai, 200050, Peop. Rep. China
SOURCE:                  British Ceramic Transactions (2001), 100(5),
                         214-217
                         CODEN: BCTRE7; ISSN: 0967-9782
PUBLISHER:               IOM Communications Ltd.
DOCUMENT TYPE:           Journal
LANGUAGE:                English
ED   Entered STN:  25 Jan 2002
AB    Nanocryst. TiO2 particles were prepared by three methods (1) direct hydrolysis
      from metatitanic acid dissolved in concentrated sulfuric acid (2) hydrolysis
      of TiSO4 (3) from powders obtained by peptizing ppts. with hydrochloric acid
      and tetraethylammonium hydroxide to form crystal phases at lower temps.
      Samples were characterized by using TEM, x-ray diffraction and Brunauer-
      Emmitt-Teller surface area anal. In the photodegrdn. of anionic sodium
      dodecylbenzenesulfonate surfactant, nanosized TiO2 particles with mixed
      anatase and rutile phases showed improved photocatalytic properties over that
      of com. P-25 titania powder.
IT   25155-30-0, Sodium dodecylbenzenesulfonate
        (in peptization on nanosized TiO2 particles prepared by hydrolysis of
        metatitanic acid)
RN   25155-30-0  HCAPLUS
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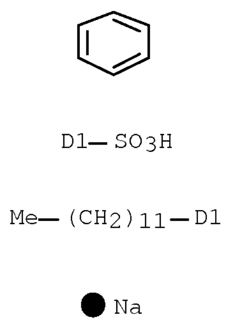
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 49-3 (Industrial Inorganic Chemicals)
IT Dispersion (of materials)
Hydrolysis
Nanoparticles
(effect of peptization on nanosized TiO_2 particles prepared by hydrolysis of metatitanic acid)
IT 77-98-5, Tetraethylammonium hydroxide 7647-01-0, Hydrochloric acid, processes 25155-30-0, Sodium dodecylbenzenesulfonate
(in peptization on nanosized TiO_2 particles prepared by hydrolysis of metatitanic acid)
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:516194 HCAPLUS Full-text
DOCUMENT NUMBER: 135:108735
TITLE: Colorant nanoscale particles having excellent dispersibility, their ink-jet inks, and their manufacture
INVENTOR(S): Zaima, Hiroaki; Matsui, Hideo
PATENT ASSIGNEE(S): Kansai Research Institute Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
	JP 2001192582	A	20010717	JP 2000-331122		20001030
	US 6527843	B1	20030304	US 2000-705283		20001102
PRIORITY APPLN. INFO.:				JP 1999-312740	A	19991102

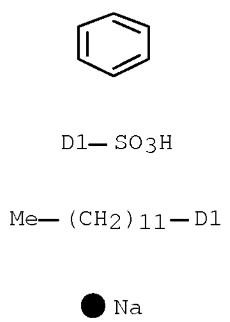
ED Entered STN: 17 Jul 2001
AB The colorant nanoscale particles, having excellent storage stability, transparency, coloring power, and dispersibility in nonpolar and polar solvents both, comprise fine particles containing dyes and metal oxides, preferably metal oxide hydrosols, and coated with organic compds. bearing ionic groups. Thus, an aqueous TiO_2 hydrosol was adsorbed with C.I. Basic

Blue 26 then with Na dodecylbenzenesulfonate (SDS) to give TiO2-SDS organosol/dye composite and subsequently dried in vacuo to give colorant particles having mean particle size 10.2 nm and CV value 12.08% and showing excellent dispersibility in PhMe, ethylene glycol di-Et ether, THF, etc., the dispersions being transparent and free from precipitation after 1 mo. A waterborne ink-jet ink containing the fine particles, tetraethylene glycol monobutyl ether, glycerin, and diethylene glycol and having mean particle size 25 nm gave water-resistant vivid images with suppressed blur.

IT 25155-30-0, Sodium dodecylbenzenesulfonate
(dye-supporting metal oxides coated with; manufacture of colorant nanoparticles having excellent dispersibility for ink-jet inks)

RN 25155-30-0 HCAPLUS

CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



IC ICM C09B067-08
ICS B41J002-01; B41M005-00; C09C001-40; C09C003-08; C09D011-00

CC 42-12 (Coatings, Inks, and Related Products)

ST colorant nanoscale particle dispersibility ink jet; nanoparticle colorant surfactant coated metal oxide; waterborne ink jet nanoparticle colorant titania; metal oxide support colorant nanoparticle ink; sol gel metal oxide nanoparticle colorant

IT Coloring materials
(manufacture of colorant nanoparticles having excellent dispersibility for ink-jet inks)

IT Surfactants
(nonionic, dye-supporting metal oxides coated with; manufacture of colorant nanoparticles having excellent dispersibility for ink-jet inks)

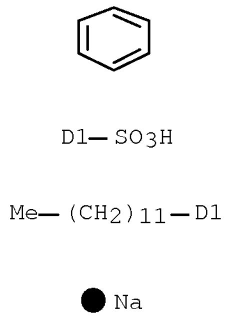
IT Sol-gel processing
(preparation of metal oxides by, for dye supports; manufacture of colorant nanoparticles having excellent dispersibility for ink-jet inks)

IT 1314-13-2P, Zinc oxide, uses 1314-23-4P, Zirconia, uses 1332-29-2P, Tin oxide 1332-37-2P, Iron oxide, uses 1344-28-1P, Alumina, uses 11129-18-3P, Cerium oxide 13463-67-7P, Titania, uses
(dye supports, prepared by sol-gel process; manufacture of colorant nanoparticles having excellent dispersibility for ink-jet inks)

IT 112-02-7, Hexadecyltrimethylammonium chloride 25155-30-0, Sodium dodecylbenzenesulfonate
(dye-supporting metal oxides coated with; manufacture of colorant nanoparticles having excellent dispersibility for ink-jet

inks)
IT 493-52-7, Methyl red 2580-56-5, C.I. Basic Blue 26
(supported on metal oxides, coated with surfactants; manufacture of colorant nanoparticles having excellent dispersibility for ink-jet inks)
IT 1559-34-8, Tetraethylene glycol monobutyl ether
(surfactants, colorant nanoparticles treated with; manufacture of colorant nanoparticles having excellent dispersibility for ink-jet inks)

L31 ANSWER 16 OF 16 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:37517 HCAPLUS Full-text
DOCUMENT NUMBER: 122:41298
ORIGINAL REFERENCE NO.: 122:7811a,7814a
TITLE: Photophysical studies on nanoscale clusters and cluster-assembled materials
AUTHOR(S): LI, Tiejin; Xiao, Liangzhi; Peng, Xiaogang; Zhang, Yan; Zou, Bingsuo; Wang, Dejun; Fei, Haosheng; Bao, Xinnu; Zhu, Ziqiang
CORPORATE SOURCE: Jilin University, Changchun, 130023, Peop. Rep. China
SOURCE: Photochem. Photoelectrochem. Convers. Storage Sol. Energy, Proc. Int. Conf., 9th (1993), Meeting Date 1992, 313-29. Editor(s): Tian, Zhao Wu. Int. Acad. Publ.: Beijing, Peop. Rep. China. CODEN: 60HRAS
DOCUMENT TYPE: Conference
LANGUAGE: English
ED Entered STN: 08 Nov 1994
AB There are several subjects been mentioned. The red shift is discussed of the optical absorption band edge of TiO_2 ultrafine particles (UFP) caused by the Coulomb term of the equation given by L.E. Brus (1986, 1987, 1989). The nonlinear optical properties are discussed of Fe_2O_3 UFP (as the example of several kinds of metal oxide semiconductor UFP). $\chi(3)$ Of the UFP coated with a layer of surfactant increases 2 orders comparing with the naked UFP, resulting from the dielec. confinement. The nanocluster ordered assemblies built-up by Langmuir-Blodgett (LB) technique are discussed. The fatty acid salts LB films is only suitable for the preparation of the inorg. compound monolayers by the reaction of the LB films with H_2S or other agents, and the LB films of PMAO (polymaleic acid octodecanol part ester) salts is a better matrix. By LB method, the nanoclusters can be transferred directly from their hydrosol to form a kind of 3 dimensional quantum dot superlattice.
IT 25155-30-0, Sodium dodecylbenzenesulfonate
(nanoscale cluster-assembled materials by reaction of hydrogen sulfide with Langmuir-Blodgett films containing)
RN 25155-30-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl-, sodium salt (1:1) (CA INDEX NAME)



CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
ST photophys nanoscale cluster assembled material
IT Optical nonlinear property
(four-wave mixing; of ferric oxide surfactant-coated ultrafine particles)
IT Fatty acids, uses
(nanoscale cluster-assembled materials by reaction of hydrogen sulfide with Langmuir-Blodgett films containing)
IT Materials
(nanoscale cluster-assembled; photophys. studies on)
IT Clusters
(nanoscale; photophys. studies on)
IT Surfactants
(nonlinear optical properties of ultrafine particles coated with layer of)
IT Dielectric constant and dispersion
(of ultrafine particles coated with surfactant layer)
IT Superlattices
(quantum dot; photophys. studies on nanoscale clusters and cluster-assembled materials)
IT Films
(Langmuir-Blodgett, fatty acid; nanoscale cluster-assembled materials by reaction of hydrogen sulfide with)
IT Semiconductor devices
(quantum dots, superlattice; photophys. studies on nanoscale clusters and cluster-assembled materials)
IT Optical nonlinear property
(third-order, of ferric oxide surfactant-coated ultrafine particles)
IT 7783-06-4, Hydrogen sulfide, reactions
(nanoscale cluster-assembled materials by reaction of Langmuir-Blodgett films with)
IT 112-80-1, Oleic acid, uses 822-16-2, Sodium stearate 1072-35-1, Lead distearate 25155-30-0, Sodium dodecylbenzenesulfonate 159745-54-7
(nanoscale cluster-assembled materials by reaction of hydrogen sulfide with Langmuir-Blodgett films containing)
IT 1309-37-1, Ferric oxide, properties
(nonlinear optical properties of surfactant-coated ultrafine particles of)

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                  SEL RN

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                  8/BI OR 12586-59-3/BI OR 13149-99-0/BI OR 1330-69-4/BI OR
                  151-21-3/BI OR 169211-42-1/BI OR 24991-53-5/BI OR 28675-11-
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                  9003-20-7/BI)
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L5              1 SEA ABB=ON  PLU=ON  28675-11-8/RN
L6              1 SEA ABB=ON  PLU=ON  25155-30-0/RN
L7              1 SEA ABB=ON  PLU=ON  28348-62-1/RN
L8              1 SEA ABB=ON  PLU=ON  33773-60-3/RN
L9              5 SEA ABB=ON  PLU=ON  (L4 OR L5 OR L6 OR L7 OR L8)
L10            12 SEA ABB=ON  PLU=ON  L2 NOT L3

     FILE 'HCAPLUS' ENTERED AT 12:23:44 ON 18 AUG 2008
L11         10560 SEA ABB=ON  PLU=ON  L9
L12          1740 SEA ABB=ON  PLU=ON  L11 AND DISPERS?
L13             2 SEA ABB=ON  PLU=ON  L12 AND L1
L14            17 SEA ABB=ON  PLU=ON  NADDBS
L15          1023 SEA ABB=ON  PLU=ON  L12 AND SURFACT?
L16               QUE ABB=ON  PLU=ON  NANOTUBE? OR NANOSCALE? OR NANOSTRUCTUR
                  E? OR NANOWIRE? OR NANOROD? OR NANOCRYST? OR NANO(W)(TUBE?
                  OR SCALE? OR ROD? OR STRUCTURE? OR CRYST?)
L17            70 SEA ABB=ON  PLU=ON  L15 AND L16
L18            56 SEA ABB=ON  PLU=ON  L17 AND CARBON#
L19             2 SEA ABB=ON  PLU=ON  L18 AND L1
L20               QUE ABB=ON  PLU=ON  SWNT OR MWNT OR DWNT OR NANOFIBER OR
                  NANOFIBRE OR NANOTOROID
L21            21 SEA ABB=ON  PLU=ON  L18 AND L20
L22               QUE ABB=ON  PLU=ON  SODIUM OCTYLBENZENE SULFONATE# OR
                  SODIUMDOCTYLBENZENE SULFONATE# OR SODIUMOCTYLBENZENESULFONA
                  TE
L23               QUE ABB=ON  PLU=ON  HEXYLBENZENE SULFONATE# OR HEXYLBENZENE
                  SULFONATE#
L24               QUE ABB=ON  PLU=ON  SODIUM HEXADECYLBENZENE SULFONATE# OR
                  SODIUMHEXADECYLBENZENE SULFONATE# OR SODIUMHEXADECYLBENZENE
                  SULFONATE
L25               QUE ABB=ON  PLU=ON  NADDBS OR SODIUM DODECYLBENZENE
                  SULFONATE# OR SODIUMDODECYLBENZENE SULFONATE# OR SODIUMDODE
                  CYLBENZENESULFONATE
L26            18 SEA ABB=ON  PLU=ON  L18 AND (L22 OR L23 OR L24 OR L25)
L27            56 SEA ABB=ON  PLU=ON  L18 OR L21 OR L26
L28            56 SEA ABB=ON  PLU=ON  L27 AND (DISPERS? OR SUSPENS?)
L29           128 SEA ABB=ON  PLU=ON  L12 AND (L16 OR L20)
L30            72 SEA ABB=ON  PLU=ON  L29 AND SURFACT?
L31            16 SEA ABB=ON  PLU=ON  L30 NOT
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